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SOUTHERN TEXTILE BULLETIN

VOL. 34

CHARLOTTE, N. C., THURSDAY, APRIL 5, 1928

NUMBER 6

Fabrics of Beauty
And Distinction
Are the Demand of Today
Some are a Combination
Of Real Silk and Cotton
Some of Rayon and Cotton
If made with one Shuttle
They are being Woven
on Northrop Looms

DRAPER CORPORATION

Southern Office Atlanta Georgia

Hopedale Massachusetts

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On the newest type drives in the mill of Joseph Bancroft & Sons Co.

You're looking at a battery of pickers in the nationally known cotton manufacturing plant of Joseph Bancroft & Sons Co., of Reading, Pa. Pickers are pickers, and these are no different than the rest—except for the way they're driven.

Here you see one of the newer types of drive—with the power transmitted from motor to machine by **leather** belts. To make these drives as efficient and trouble-free as possible, this company has fitted them with Graton & Knight leather belts.

Not only their pickers, but practically every drive in this well known company's mill is belted by Graton & Knight. After you've read the Standardized Belting Manual that describes the Graton & Knight process of belt making, and contains real

proof of the longer lasting, better running qualities of Graton & Knight belting, you'll realize why so many large companies are using Graton & Knight belting as standard equipment. Send for it.

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WORCESTER, MASSACHUSETTS
Branch offices throughout the World

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Aprons, Leather Cups
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Leather, Oak Sole
Leather, Soles, Coun-
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Graton & Knight

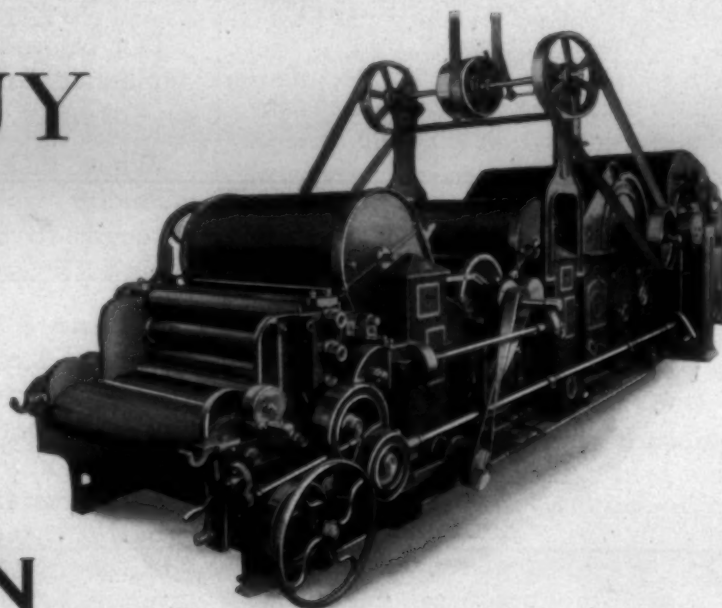
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LEATHER BELTING LASTS LONGER

One of a series of advertisements giving you ACTUAL PERFORMANCE FACTS on Graton & Knight Belting

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WHITIN

TWO-BEATER BREAKER LAPPER?

ONE MILL SUPERINTENDENT wrote in on Feb. 21st, as follows: "*It has occurred to me that if you build all your pickers as you did these, you should cover the whole universe with WHITIN pickers.*"

We would be glad to—and the universe would not suffer thereby. Our opening and picking machinery is worthy of your investigation. When may we hear from you?

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Automatic Humidity Regulation The Psychrostat

Humidification to be economical must constantly balance evaporation with air change. The amount of evaporation needed is governed by several conditions: average climate; size, shape and construction of a given space; power consumed in it.

Now the size, shape and construction remain fixed. The power consumed is reasonably constant. But the climate changes from month to month—from morning to night. Yes, from one hour to the next.



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All right then, if we have too much humidifying capacity some of the time—what shall we do about it. Why naturally at times we shall have to limit the output of moisture. How shall we do that? Why, by shutting off some or all of the humidifiers.

Yes, that can be done—but before we can tell when to do this, we have got to go around and take a lot of sling psychrometer readings.

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What makes a good humidity regulator? Well, it ought to be sensitive, hadn't it?



Without a thermometer, can you distinguish a difference of one degree in temperature—you yourself? Could you tell whether it was up—or down? And do you realize that a change of one degree up or down—just one little degree that I'll wager you can't feel—means a change in the relative humidity of 4 to 5 per cent?

But is 4 to 5 per cent variation satisfactory? What would you say to a humidity regulator that senses the changes before the eye can note them on the thermometers? The **Psychrostat** does that. If it didn't it wouldn't be a sensitive humidity regulator.

So much for sensitiveness or accuracy or precision or whatever you want to call it.

The **Psychrostat** is as rugged as a locomotive and as delicate and accurate as a fine chronometer. It is not "a rag, a bone and a hank of hair," or even a block of wood, but steel and iron and copper and brass—and skill of design and craftsmanship.



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SOUTHERN TEXTILE BULLETIN

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New Uses for Cotton

It is with great pleasure that I am here today and I appreciate the opportunity to tell you something of the Cotton-Textile Institute, the work of the New Uses Section and indicate wherein we can be of mutual assistance in this work of increasing the consumption of cotton and cotton products.

Carlyle once said something to the effect "that civilization is done up in cotton cloth and tied with a thread."

That is true. This industry of ours employs approximately one half million people in factories alone, to say nothing of other thousands in agriculture and shipping, and stands third in the number of wage earners. In 1925, the value of its products was one and three quarter billion dollars and seven and three quarter billion yards of fabric was woven in our mills. Such figures are difficult to visualize but perhaps we can appreciate their magnitude when I tell you that the fabric produced would enable one to wind a strip of cloth a yard wide, 200 times around the earth at the Equator.

Looking at it from another standpoint, the value of the cotton fabrics produced in this country exceeds that of the combined value of linen, wool and all other woven fabrics, and in yardage aggregates eight times the combined yardage of these other industries. In fact, the cotton production of the world by weight is four and a half times that of wool, nine times that of flax, seventy times that of rayon and a hundred and twenty-five times that of raw silk.

We all realize that cotton is Nature's most abundant fiber; that it is more useful than any other textile; that it is the whitest and cleanest fiber; that it is an artistic fiber; a durable fiber, a comfortable fiber; that it does not easily deteriorate and that being a heavy fiber, is practical for industrial uses where strength and durability are required.

The Institute.

The cotton industry is one of the oldest but the Cotton-Textile Institute is one of the newest comers to the family of industrial associations. It is, however, the oldest of the textile institutes. I use the word "association" because we are essentially a trade association formed by the leading representatives of our industry in America for the purpose

Address at Textile School of N. C. State College, Raleigh, by Ernest C. Morse, The Cotton-Textile Institute, New Uses Section

of promoting progress and development of the cotton industry. Although several individuals had considered the advisability of such an association for some time, it was not until the summer of 1926 that the movement really took form and in less than one year the Institute was formed, the directors and executive committee selected. Walker D. Hines, formerly director general of railroads, arbiter of European river shipping following the war and a man of international reputation was selected as president.

Today, the Institute has a membership of 456 corporations, representing over 500 mills, in turn representing 21,716,752 spindles or well over two-thirds of the total active spindles in the United States spinning cotton.

Mr. Hines was chosen president of the Institute in December 1926 and promptly proceeded to organize the staff of the Institute around three major activities, Cost Accounting, Statistical and New Uses. For the purpose of facilitating the work, he is organizing the membership into groups for the consideration of specific problems. To date he has organized the following groups based on the type of products made by the mills: Bedspread Group, Carded Yarn Group, Chambray Group, Flat Duck Group, Narrow Sheet Group (drills, twills, jeans, sateens), Wide Sheet Group, Osnaburg Group, Print Cloth Group (carded broadcloth, carded sateen, pajama check and shade cloth), Printers Group.

Other groups will be formed as rapidly as a need for them is expressed by the manufacturers concerned. Each group has selected an advisory committee with whom the Institute can consider problems affecting that particular group of mills and in this way decide upon recommendations that are to be made to the members of a given group.

Extending Cotton Uses

I am continually impressed by the great scope of work which naturally falls within the province of the New Uses Section. This section is not confined specifically to the work in-

dictated by its name. We realize that in an industry as old as ours, strictly new uses are not easy to find—that they can be found I will show you later. On the other hand, we believe that there are many old or existing uses where the consumption of cotton and cotton products can be materially increased. This section is also charged with general supervision over research problems and matters having to do with specifications, simplified practice, standardization and test methods. We can, therefore, broadly divide the activities of the New Uses Section into those having to do with technical problems and those having to do with market problems.

We attach the greatest importance to the consideration of matters of common interest to the cotton mills, the cotton growers and indeed all industries and individual consumers of cotton or cotton products in any of its many forms. It has been pointed out by our president that while the Institute has great opportunities among its members, it has very great and far reaching opportunities in collaborating with other interests in the vast field of cotton industry and commerce as a whole.

The United States Government, through the Departments of Agriculture and Commerce, has always taken great interest in the cotton industry. For the fiscal year beginning July 1st, 1927, both of these departments in addition to their regular appropriations, received special funds from Congress to be expended specifically for the benefit of the cotton growers and the cotton textile industry. For the first time in the history of our industry, a committee was formed consisting of one representative from the Department of Commerce, one from the Department of Agriculture and one representing the Cotton-Textile Institute, for the purpose of making a thorough survey of all existing and potential markets, for the analyzing and summarizing of these surveys and publishing of results from time to time for the benefit of the cotton grower, the cotton textile industry and the consuming public and industries.

Already three trade commissioners have been sent abroad to study possible export markets. Concrete results have already been secured in the Egyptian market.

List of Cotton Surveys.

The following surveys have been made and published or are about to be published:

"Partial List of Uses of American Raw Cotton, Department of Agriculture.

"Cotton Bags in the Wholesale Grocery Trade, Department of Agriculture.

"Why Women Choose to Wear Cotton or Silk," Bureau of Home Economics and Department of Agriculture.

"Short Skirts, Short Sleeves and Short Sales of Cotton," Bureau of Home Economics and Department of Agriculture.

"Uses of Cotton in Clothing and Household Articles," Department of Agriculture.

"Cotton Bagging for Cotton," Department of Agriculture.

"Farm Uses for Cotton and Its Products," Department of Agriculture.

"Fabrics and Their Uses," Department of Commerce.

"Uses of Cotton Textiles in Manufactured Products," Department of Commerce.

"Qualities of Cotton," the Cotton-Textile Institute.

The results of these surveys will probably put before this great industry of ours for the first time in its history, detailed information which has never before been available to producer, manufacturer, distributor or the consumer.

We are working in close co-operation with many associations representing not only manufacturers interested directly in our industry but those representing many other industries. To mention a few as illustrating the range of industries interested in one way or another in our problems, I would call attention to the following: National Association of Purchasing Agents, National Fertilizer Association, American Wholesale Grocers Association, Portland Cement Association, National Tent & Awning Manufacturers Association, Associated Business Papers, Carolina Shippers Association, etc.

New uses for a fabric which for

generations has been the most widely used of all our fibers are not easy to find. Occasionally, however, a real new use can be developed. For instance, during the past year there has come to our attention the use of a fairly heavy cotton fabric impregnated and stenciled, provided with an adhesive back used on our and pavements in the form of strips, letters, etc., to assist in the control of traffic.

This same material can be further used in warehouses, on railroad platforms, for names of manufacturers placed on walls or roofs of mills and on roofs of hangars at airports to designate the names of such ports.

A development of this use means a potential consumption of 3,000,000 to 5,000,000 yards of cloth per year.

Another interesting use is that of a State highway engineer, in Newberry county, S. C., who has used a fabric on a road having light traffic and where the cost of ordinary asphalt or concrete paving is prohibitive. He first poured a prime coat of light tar, then spread over it the next day an open weave cotton fabric which in turn was covered with hot asphalt and then with a coarse sand. After nearly a year's use, this improved highway shows very little, if any, wear. The significance of this use is apparent when we recall that there are 2,485,000 miles of unimproved rural roads in this country.

Still another interesting use in connection with road construction is a fabric which has been developed at the request of the road engineer under the supervision of our textile engineer and research associate at the Bureau of Standards, known as a cleavage fabric. This fabric is laid on top of the base course of a concrete road before the finished course is poured. When repairs to the road are necessary due to the wear or other reasons, it is claimed that the finished or top course can be easily split off and separated from the base course due to the insertion of this fabric and a new top course put on, making the road as good as new.

We are told that approximately one million yards of this fabric will be required this coming year and that within five years, we will probably see five million yards per year required.

Our own mills can assist in increasing the consumption of cotton. For instance, last year by specifying the shipment of starch in cotton bags, there was an increased consumption of 250,000 yards of cotton fabrics. Loom pickers are now being made from cotton treated with a resinous material and molded to shape. Each loom picker consumes 3½ ounces of 15½ ounce special duck and there are said to be one and three quarter million loom pickers in use in the country.

Every cotton mill uses belts. Fabric belts are used successfully by many of our mills. We are told that from 10 to 20 per cent or an average of 15 per cent of the belting in a textile mill is replaced every year. If this replacement was entirely in fabric belts, we could in-

crease the consumption by 3,000,000 square yards of duck.

On the Farm.

The survey made by the Department of Agriculture in connection with the various uses of cotton on the farm, lists approximately 150 different uses. Approximately three million farmers in our Southern States raise approximately 60 per cent of the world's production of cotton. Every farmer consumes cotton fabrics now and can help us to further increase their consumption.

It is estimated that 90 per cent of the farm machinery is stored without protection from the weather and that such machinery so stored has one-half the life of machinery properly protected. We are co-operating with the Department of Agriculture in the hope that more and more farmers can be induced to use tarpaulins to cover their machinery and thus reduce the economical loss.

The Department of Agriculture tell us that cotton bagging is perfectly satisfactory for the shipment of fertilizer where no free acid exists. Every farmer can request that his fertilizer be shipped in cotton if no free acid is present. In the meantime, steps are being taken with the hope of developing a cotton bag satisfactory for shipping all fertilizer.

Every one of the forty million people living in our Southern States are directly or indirectly interested in cotton. If each one of these forty million people next year consumed an additional five yards of cotton fabrics, it would mean an additional two hundred million yards and this in turn would mean approximately 100,000 bales. This increase can only be brought about by every one of us being on the lookout for uses now being served by competitive material but where cotton can be used.

Cotton Bags.

We can, for instance, as South Carolina did last year, insist upon the cement being shipped in cotton containers. South Carolina by so insisting, increased the consumption of osnaburgs last year, 330,000 yards.

One of our mills that operates a store, recently wrote every wholesaler and jobber supplying them goods to this effect: "We are, therefore, writing to ask that wherever it is possible for you to do so, without increased cost, that you use cotton goods in wrapping or packing materials which we purchase from you." The following are some of the replies:

"Like so well, expect to use no other."

"Will use wherever possible."

"Very much in favor of cotton bags."

"We have not only specified cotton bags but have urged merchants to do likewise."

"We are insisting—'Ship everything in cotton bags.'"

"Have used almost exclusively the last two years."

"Wherever possible, have used and urged others to do so."

"Instructed mills from whom we

buy, give us cotton bags whenever possible."

"Ordered stamp, 'Help the South ship all goods in cotton.'"

"Glad to report, we have now succeeded in getting a sugar refinery to ship all sugars moving into this territory in cotton."

If every store in the South wrote their suppliers along the same line, I believe we would soon have shipped in cotton, the majority of the purchases made by these stores.

Cotton for Cotton Bales.

I have not touched upon one of the biggest possible markets for cotton bagging namely, the covering of cotton bales. This subject, as you all know, is being given very careful consideration and study by the Department of Agriculture, the Cotton-Textile Institute and by the cotton growers. I am confident that a way will be found whereby it will be feasible to cover our cotton with cotton.

We are told that the thirty million women of this country spend 85 per cent of the family budget and that 85 per cent of our families live on an income of \$2500 a year or less. We are further told that 60 per cent of our population live in communities of 5,000 or less.

The automobile and better roads supplemented by the radio and women's magazines have in the past ten years brought about a great change in our economic living. The effect on rural communities is illustrated by the fact that a survey of 140 typical rural communities indicates that the women on the average travels 38 miles for her clothes and other fabrics.

We are not, therefore, unmindful of the tremendous consuming power of this portion of our population and the New Uses Section through every channel at its command is putting before these women, information that will enable them to secure the most value for their expenditures.

Need Longer Sheets.

For instance, a study has been and is being made in connection with bed sheets and the question of what was the most economical and satisfactory length of a sheet was found to be very important as well as little known. We found that bed sheets in general were sold as independent items and their size was not coordinated in any way with the size of a bed, the spring and more important of all, the mattress.

The minimum size mattress, as far as we can learn, that is sold for home use today, is 73 inches in length and the average length is 75 or 76 inches. The thickness varies from 4 to 6 inches. I believe that you will all agree with me that it requires 7 to 10 inches of sheet, tucked under the mattress at each end if the sheet is to be held firmly in place. If we now add together the length of the mattress which we will take as 75 inches, twice thickness of the mattress which we will take as 5 and 7½ inches tucked under at each end, you will have a total length of 100 inches of sheet necessary.

One of the standard sizes of bed sheets is the 108-inch sheet. This, as you all know, does not mean the

useful length of the sheet but means the torn length when new. We must, therefore, deduct—first, 4 to 5 inches for hems, and second, as indicated by tests made by the Bureau of Standards for the Government, a shrinkage that may be as much as 5 to 6 inches per sheet, leaving a length of about 99 inches or 1-inch less than the necessary length to hold the sheet properly in place.

In the case of the top sheet, tucking under the same amount at the foot will enable us to turn back the sheet approximately 18 inches which gives protection to your blankets with the resulted reduction of laundry bills, also, it keeps the face from the other bedding and reduces the possible chance of germ transmission, and what is very important, enables the sleeper to keep both feet and shoulders comfortably covered.

Interior Decorating.

The past few years have brought about an increased desire on the part of the woman home maker, no matter how modest her home may be, for attractive and colorful curtains, draperies, wall coverings, furniture coverings, etc.

Cotton fabrics are available for these purposes in such a wide range of constructions and designs that this desire can be fulfilled in that 85 per cent of our homes which must live on a modest income.

Plain every day osnaburg (better known as bagging) we are told by interior decorators, has possibilities for this purpose. Its neutral color and a rough texture which makes an interesting combination with different fabrics and different colors.

On the other hand, we have fabrics for these purposes which retail as high as from \$10.00 to \$12.00 per yard, available for those homes where the budget is more flexible.

A new treatment of an old material is illustrated by the pyroxalin treated fabrics used for draperies, slip covers, shower bath curtains, etc., which are water proof and can be wiped off and cleaned with a damp cloth without laundering. This fabric is particularly useful in kitchens, and for use in homes where coal dust, soot, dust, etc., are factors to be contended with.

Cotton is such a familiar requirement in the home that we are prone to overlook the many ways and forms in which it serves a daily purpose.

Awnings.

Just now when there is so much interest in color for interior decorating, it is worth noting the fact that more attention is being given to the exterior of the home. Here again, cotton is extremely useful for awnings with which the modern well equipped home is supplied. They serve not only a very practical purpose for protection against sun and storm, but also add an air of individuality which can be obtained in no other way. In fact, a house equipped with properly selected awnings not only has its attractiveness but also its value increased.

In order to stimulate architects to give as much consideration to the design of awnings for the home as possible, certain members of the

(Continued on Page 43)

Technique of Buying and Assigning Cotton to Use in Manufacturing*

It is my purpose to discuss briefly and simply some of the technicalities concerning the buying cotton for a mill and assigning it to use.

Some of my remarks will not be interesting to you men of experience, but, I shall be pleased if in the aggregate, I initiate a new thought. The technical meanings of some of the words and terms used in connection with cotton are distinctly different from other usages of the same words.

Grade.

Grade, as referred to, embodies color, luster, brightness of lint, leaf, dust, foreign matter and the preparations of ginning. There have been standardized thirty-two grades of American upland cotton, consisting of nine white grades, three gray, three blue stained, five spotted, six yellow tinged, three light stains and three yellow stains; yet, I could not describe even one of these grades to you so you would know it. I shall not take the time to name these gation or legal power thrown about them.

Staple.

Staple, is a word used with reference to the commercial length of the fibers or lint. It is very difficult to buy cotton on description for staple since the buyer and the seller both can be conscientiously of different opinions. The method of arriving at the length contains more of the possibility of the human error. The government has established seventeen length standards for American upland cotton ranging from $\frac{3}{4}$ -inch up to $1\frac{1}{2}$ inches and they have also suggested methods to follow in determining lengths. These standards differ from the grade standards in that you are not to touch or disturb the samples in a grade box while the staple standards are to be used in pulling or working out in comparison with the other cotton. The grade and staple of cotton is called its class.

Character

The character of cotton may be defined as the difference of quality as to the body, firmness, spirality, cling, evenness and uniformity which in actual work distinguishes it from other cotton of the same grade and length.

There are numerous other words or terms used in determining various qualities of cotton such as notes, neps, shale, snap bollies, perished staple, mixed staple, gin cut, thrashed cotton, false packed, repacked, plated, damaged and city crops. All of these terms have significant meanings as to the value of cotton but it is only possible now to mention these factors and discuss more freely the points bearing closely to the subject.

A contract between merchant and mill for the purchase of cotton consists in naming the date of sale, fixed or basis price, grade, staple, delivery, bank on which draft is drawn, and rules governing the contract. All sales are made by shippers direct

By Wm. S. Dean, Cotton Buyer, Rosemary Manufacturing Company,
Roanoke Rapids, N. C.

or through brokers, either by telephone, telegraph or verbally and should be confirmed by writing by both parties to the contract. Usually this is done by both parties signing the contract in duplicate, each retaining a copy.

The rules most general used in the South are known as the Carolina Mills Rules 1915 Revision. They were adopted by the North Carolina Cotton Manufacturers' Association and the South Carolina Cotton Manufacturers Association. There have been other more recent revisions of these rules but the intent is practically the same though possibly clarifying some phases and mystifying other parts.

The rules prescribe methods of procedure and actions you are entitled to take in disputes.

Basis.

In trading, you frequently use the word basis, which can be understood in several ways depending on the manner in which you use it. A "Basis contract" is one in which one grade is specified and other grades may be delivered at the prevailing differences in value "on" and "off" the specified grade. The word "Basis" is used also as a parity between spot cotton and futures as so many points "on" or "off" of some specific month for the delivery of a certain grade, character, or staple, as 50 points "on" or "off" May, which means the parity between what May is quoted and the price of cotton offered. You frequently hear that the "basis" is higher or the "basis" has eased off or lower on certain grades of staples, which means the relative price, at which that cotton can be purchased in comparison with the spot market, is higher or lower. The supply and demand of a particular grade or staple effects the "basis."

The word point means $1/100$ part of one cent; 25 points is one-fourth of a cent; 50 points is one-half of a cent, etc. On a contract of 100 bales, one point would be \$5.00; 20 points \$100.00 or 100 points would be \$500—or one cent per pound.

Hedge.

The word hedge is difficult to define by the use of a few words. It is price insurance in one sense. It is a sale or purchase of a future contract as applied to cotton to effect a reverse spot transaction of the equal or equivalent amount of cotton or goods.

Suppose a cotton merchant bought 1000 bales of spot cotton and he wished to concentrate it and classify it into even running lots before he offered it for sale. In order to insure himself against market fluctuations, he would sell contracts on the future market to the amount of 1000 bales and later as he sold his spot cotton he would buy in his future contracts. In the interim if the market advanced two cents a pound, he would have lost \$10.00 per bale on his spot cotton and he would have gained \$10.00 per bale on his

future contract, thereby insuring his profit margin. Or suppose you were operating a mill on a class of goods which price varied in keeping with the cotton market. You had no orders but wished to buy cotton to operate the mill, you would, in order to hedge your margins of profit, buy your cotton and sell futures to the amount of cotton you bought. When the goods were sold you would buy in your future contracts. If the market had declined, for instance 5c per pound, you would have sustained a loss in your spot cotton which you had used but would have gained 5c per pound on your future contract. The same principle will apply to a Southern mill that buys freely local or door cotton, on a cheap basis during the fall months without selling goods to offset the cotton purchased.

I am sorry to admit that the difference in the sanctity of a contract for goods is not wholly in keeping with that of a cotton contract, nor does the goods market respond sensitively always to the cotton market. But, I am convinced, however, that the greater portion of mills would materially profit by hedging their spot purchases when there are no goods sold to offset. Otherwise, it is guessing at the trend of prices in the same way as if goods were sold and no cotton was bought to cover the sale of goods.

Buying Cotton from a Merchant.

We shall assume now that the mill you are working for wishes to buy 1000 bales and that the purchase is to be made from a cotton merchant. If you are the buyer, you would be advised of the kind, quantity and delivery of cotton desired; and too, as a result of previous communications, you would know pretty well the approximate price you must pay. You would also know from whom the cheapest cotton had been quoted and also the integrity, financial rating and standard of shipments usually received. It is your duty to communicate with merchants or brokers by way of phone or wire requesting prices on the cotton desired. Though an abuse of this practice sometimes results in disadvantage rather than advantage. Energetically solicited offers make the buyer the aggressor. Many times if you keep abreast with the trend of the market it is possible to make some of your best purchases by being able to buy cotton when offered without solicitation.

The purchase of 100 bales is no small item. At 20c per pound it represents \$10,000 or 1000 bales represent \$100,000. It is an easy matter for 25 to 50 points in value to be misjudged in grade, staple or character, separately or combined. It is also often that this amount can be lost or saved in freight, tare or value difference between shippers. Twenty-five points on 1000 bales represent \$1,250. Suppose this saving could be effected with a mill using only 1000 bales monthly. It would be the equivalent to the

superintendent cutting off fifteen men of which he was paying \$20.00 per week. It might be the difference between profit and loss in tight times.

Competition now is keen and mills separately or in groups find it to their advantage to employ competent cotton men. Some buyers purchase a good portion of their cotton on description. This method has been materially simplified since the Government standards for grade and staple have been established. But unless the mills' idea of grade, character, and staple is well fixed in the minds of the competitive shippers, there is likely to be considerable discrepancy in the quoted prices and it is conducive to claims and rejections.

There is no standard for character, though in some cases this feature can be fairly well satisfied if it is possible to fix the origin of shipments from a definite locality. The expense freight bills, however, though serving a good purpose, with regard to freight—have materially upset the fixing of a definite regional origin of shipments.

The most satisfactory method of buying cotton other than taking it up in the country is to select a type for staple and character consisting only of one large sample. You may use description for grades so long as you are within the range of the better grades of cotton or preferably a type consisting of several samples showing the maximum variation. With off grade cotton it is advisable to use types of all together or buy on actually drawn samples. In this way you can have embodied in your contract the main features desired and avoid disputes and rejections.

Receiving Shipments.

Some mill officials and cotton buyers feel that it is a good policy to reject a few bales out of practically every shipment to force "jam up" deliveries. That is a presumptuous attitude, decidedly detrimental to the interest of the mill. Merchants soon find out the requirements of a mill and prices are figured to take care of irregularities or rejections.

On the other hand some mills are very exact in their types as a basis of contract, but are so inaccurate in their classification when the cotton is received their short comings are soon found out. This in effect opens the door for fraudulent shipments. Such shippers compete for the business knowing in general what the mill will accept. The conservative shippers' prices are out of line because many shippers try to make deliveries consistent with their contract specifications.

It is a very satisfactory method to follow the rule of exactness in value, whether in grade, staple or character or weights. When a shipment is received a competent man should weigh it on scales tested for accuracy, observing the tare at the same time; 9 representative samples from each side of the bale should be drawn and marked according to the bale number. The shippers' number should be recorded also. The sample should be taken to a classing room

*Address delivered at The Textile School of North Carolina State College, Raleigh, N. C.

with a good north light exposure and there examined in comparison with the corresponding type or types according to your contract.

When an honest shipment has been attempted, if possible without detriment to the mill, adjust minor discrepancies and make as few rejections as possible. But tolerate no abuses of irregularities. This method creates a uniform basis for competition and results in establishing a higher standard of shippers. A buyer should try to secure such deliveries as would not justify claims. Claims may show up pretty well on books but they do not make the work run satisfactorily.

When the samples are examined, each bale number should be recorded on your grade sheet and assigned to its best purpose for which it may be used. This, of course, will be governed by the size of yarns, strength, twist, color, quality and character of goods to be produced. Generally speaking, you would use a shorter cotton for filling yarns than for warp yarns, even of the same number, since in weaving, the warp yarns are subjected to greater strain and rougher treatment. The strength of hosiery or soft twisted yarns is not as great a factor as that of hard twisted yarns. The length and quality of cotton varies somewhat in direct proportion to the size or number of yarns. Some goods are manufactured for strength and durability while others are for softness and pliability. Some require brightness and luster and others for various depth of colors. It is a matter for each mill to ascertain by comparison of finished product what cottons best suit their various individual needs.

Buying Local Cotton.

Many of our Southern mills are located in the midst of cotton growing sections. The buying of cotton at the door of the mill or on the street or from country merchants or farmers is in many respects different from buying cotton from shippers.

There is a physiological condition prevailing amongst such people that the mills pay more than merchants and are fairer in their dealings. This is a valuable asset to a mill thus located and it is only by recognizing in price, superior qualities and encouraging the production of better cottons that the mill can retain this good will.

Should you go out to look at a man's crop, give him a fair estimate of its value. You are only competing with the merchant who has generally concentration and freight charges to defray. Let the farmer realize that you are co-operating with him for mutual advantages. When crop lots can be used satisfactory there are immense savings to be effected in the purchase of such cotton.

This policy of country buying is especially suited for a colored goods mill. It is important that each bale purchased be sampled and assigned to its particular use.

Mills requiring white cotton can also co-operate with the grower to a very decided extent, resulting in the production of better grades and even staple as well as improved

qualities. In either case co-operation will result in better ginning.

In buying of local cotton it is very important that the farmer should be educated to a realization of losses sustained by weather. If you make price recognition as to quality to effect the desired results, you are privileged to use the same method as a discrimination between well kept cotton and poorly kept cotton. Talking will do no good so long as you accept water for cotton.

A wet or damaged bale is not considered merchantable unless first conditioned. But when a bale of local cotton is received and docked, the farmer often fails to realize that the dockage for water alone should reduce the bale to its original dry weight. The dockage for damage must make a further reduction in weight. For this reason it is a good plan, when possible, to avoid the purchase of wet or damaged cotton. Cotton is very hygroscopic. It takes up moisture readily.

Some very interesting tests have been made by the Department of Agriculture on cotton left out exposed in various conditions from December to May inclusive. The actual losses due to damage ran from four pounds per bale where the cotton was placed on dunnage and covered with tarpulin to 232 pounds where the cotton was left flat on the ground.

Difference in Grades

A cotton buyer for a mill should know something of the intrinsic value of the different grades of cotton.

The market quotations for the grades are determined by ascertaining the average spot transactions of ten markets, designated by the U. S. Department of Agriculture. These values may or may not reflect the true value to the manufacturers of the consumer of the goods.

Often, the bulk of the cotton crop is contracted for before the cotton crop is ginned. It is impossible for the merchants to know whether or not they are over selling or under selling the production of certain grades. If some particular grade of cotton is oversold, the demand becomes acute and the scarcity of such cotton forces the merchant to bid out of proportion in order to fill contracts. Such has been the case this season with low grade cotton, it being a high grade crop. Where a superabundance of low grades are produced, the reverse occurs. Some mills can adjust themselves within certain limits to meet conditions, but in making this adjustment, care must be exercised in the selection of cotton for different goods to prevent the establishment of an undesirable quality standard in the goods produced.

When, as last year, mills adjusted themselves to lower grade cotton and merchants sold them for the incoming season that which was not produced, an abnormal demand was created. If the cotton buyer is serving the mills to the best advantage, he should co-operate with the mill management and superintendent to adjust the buying as far as possible to the most profitable cotton. This especially refers to the

mill that had not bought ahead but was facing an abnormal ratio of differentials between grades.

I do not mean to say that a mill making a standard grade of goods can shift from pillow to post. Neither do I mean to advocate extreme mixes. If, however, higher grades are selling below the intrinsic value, it is possible with many mills, especially those producing colored goods to adjust to a different grade. Sometimes it would be possible to produce as good results by the use of a little shorter cotton in the higher grades with better character resulting, than to use the lower grade cotton. Or it is sometimes possible to use a little longer cotton in the lower grades, provided lower grades are selling at an abnormal discount.

It is unfair to figure that the difference between any two grades of cotton is represented wholly by the amount of waste. Those grades discarding an excessive amount of waste do not only represent to the manufacturer an increased waste and less usable cotton, but if this excess was not discarded it would appear in finished product and have the value of finished product instead

of the value of waste. Then, too, the quality of goods made from off grade cotton is not the same, nor is off grade cotton as easy to manufacture into goods. The cost of manufacturing a pound of good cotton, which would produce, for instance, 8 per cent goods—would be but little difference from manufacturing a pound of low grade cotton that would produce only 80 or 82 82 per cent goods because of the difference in the returning of the work. A shirt made from a pound of middling cotton is worth to the customer a great deal more than a shirt made from a pound of good ordinary cotton. Yet, the commercial difference of a pound each of these cottons now is about 2 to 2½ cents.

There is room for some very interesting investigations to be made and published concerning the quoted values of different grades of cotton as compared with the values to the consumers.

The differences in value between grades in my opinion now are not wide enough. They should also be decidedly wider when cotton is 20c per pound than when cotton is 12c per pound.

Taking the Guess Out Of Export Trade

AN address on taking the guess out of export business through budgetary control, was made by Dwight B. Billings, comptroller of Pacific Mills, at the annual meeting of export executives in Hotel Pennsylvania, New York. Mr. Billings said in part:

"All our budgeting is controlled by our budget committee headed by the chief executive. This committee issues the instructions, defines responsibility, and passes upon the budget data. We have classified our budget work into the following: charges, sales quotas, inventories, production schedules, production expense, marketing expense, master budget and financial budget.

"The first and most important is charge budget for this is our estimation is the starting point for budgetary control. On a definite date before the opening of the budget period, the export manager is asked to prepare his section. He draws for his work upon the statistics which are so vital to his department. Among these are population, imports of textile goods, possibilities of new markets, lists of potential customers, business and credit conditions, as well as detailed analyses of our own sales by lines in each country.

"A forecast for the budget period (six months in our case) is made for each country, and our actual charges for the corresponding period last year are reviewed. Charges monthly by lines are shown and these when consolidated represent the export picture. It should not be assumed that we cannot change this budget, for to be of the most use we must make it flexible and correct it for any trend that we have improperly forecasted.

"We must now look to the reasonableness of the estimate. Suppose we find that where our normal growth in South America is 5 per

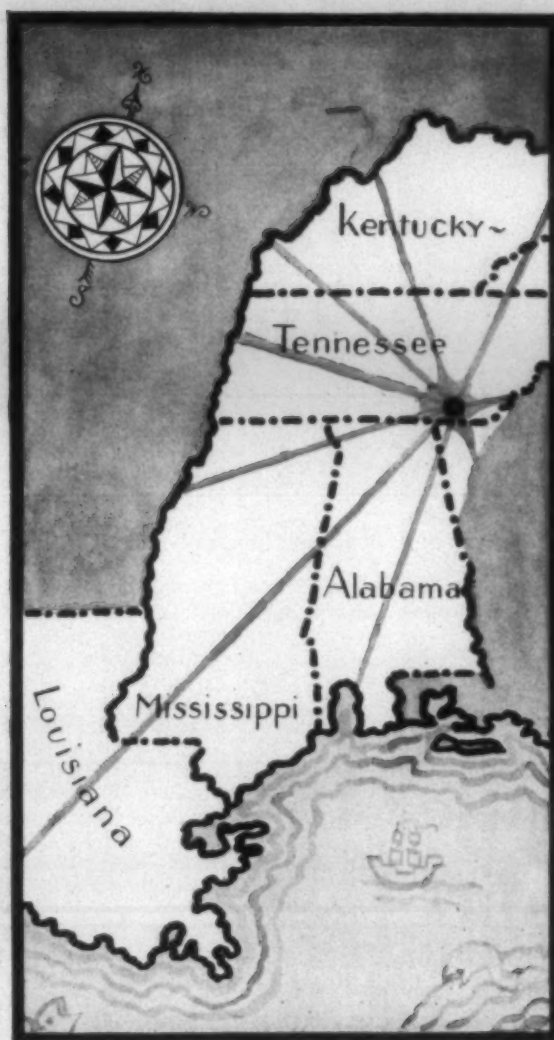
cent a year, our budget actually shows an increase of 10 per cent. We must now go back and see in which markets this increase takes place and further, whether or not it is justified. This budget is in terms of yards only, with no mention yet of selling price, cost or profit.

"Next, the export manager will estimate his sales quotas working from charges to orders rather than the reverse. The reason for this is the lack of time, for once the charge budget is ready, others may use it to compile their budgets. The relationship or lag between orders and charges together with facts on seasonal purchasing determine when the orders should be taken. In our business we can definitely work this back and set up our sales quotas. Both this budget and the charge budget are still in yards.

"In our budgeting we use two measuring sticks, yards budgeted and the percentage of gross profits. Where raw material prices fluctuate as widely as they do in our business, we feel that there is little to be gained by budgeting dollars of sales except in a very general way. There is, however, a very definite relationship regardless of fluctuations between costs and selling prices and this relationship expressed in percentages forms a ready means of measuring results. Yards measure the volume, percentages the profits. There was a time when we used to figure profits in 'points per yard.' Often by expressing these same profits in percentages, the export manager would think twice before putting the style into his line.

"Perhaps a certain line of export goods should show 25 per cent gross. This then is the standard we expect the export manager to get either through increased selling prices or cost reductions. Each line shown in the budgeted estimates is examined

(Continued on Page 43)



Kaumagraph has opened a new office at 417 Provident Bldg., Chattanooga, Tenn. in charge of Mr. Charles L. Hall, Jr. This new office will serve the territories indicated on the map at the left.

Down in Chattanooga

NOW, the expansion of industry in the South results in the expansion of the Kaumagraph Company's business, the better to serve this growing district. And so we announce the opening of our new office at 417 Provident Bldg., Chattanooga, Tenn. in charge of Mr. Charles L. Hall, Jr.

The opening of this new office will be of particular importance to textile and hosiery mills in the territory served by Mr. Hall. But it is of equal interest to others, for it demonstrates how alert Kaumagraph is

*—Kaumagraph
Opens Another
New Office*

to render service in the matter of identification.

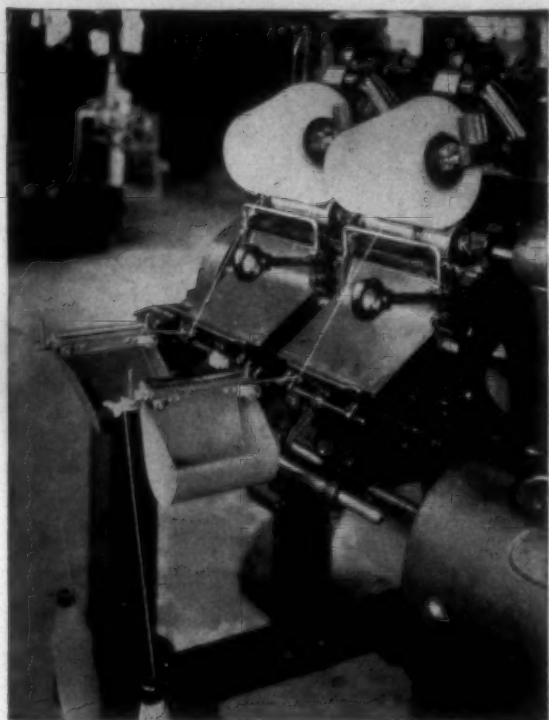
This service which Kaumagraph renders is the only complete identification service available anywhere. For example: Kaumagraph will help you design and register a trademark; help you design a box; provide Kaumagraph transfers for applying the trademark; lithograph your packing.

If you would like to know the full ser-

vice we can render you, send for a copy of our new booklet, "Half the Business Battle" which contains mighty useful information to any business firm that owns a trademark. The coupon below will bring you a copy by return mail. Kaumagraph Company, 350 West 31st Street, New York. Boston . . . Chicago . . . Philadelphia . . . Charlotte, N. C. . . Chattanooga, Tenn. . . Paris, Ont. . . Paris, France.

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Please send me without obligation a copy of your new book, "Half the Business Battle."	
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Honor Inventions of Ira Draper



It's a simple matter to collect the dirt

THERE it is, all the dirt the vibrating blades have removed . . . slubs, bunches, knots . . . cornered in the individual waste can that's slung under each Eclipse Yarn Cleaner. It's a simple matter to collect the dirt from a line of these waste receptacles. You can do it in less time than it takes to clean out a box or trough serving a group of working cleaners.

And when you let this new Eclipse be the "policeman of the Winder," you can bank on it nabbing every piece of foreign matter that comes jaunting along with your yarn. Incidentally, it's built stronger, simpler . . . and you'll find it considerably lower in price. Let us send you an Eclipse on trial . . . or give you a demonstration. Write us.

Eclipse Textile Devices, Inc.

Makers of the Eclipse-Van Ness Random Dyer

Elmira, N. Y.



IRA DRAPER, whose invention of self acting temples for looms was the foundation on which has been built the Draper Corporation, of Hopedale, Mass., one of the largest and oldest textile machinery manufacturing companies in the world, is among the pioneers to whose memory cotton manufacturers will pay tribute on the occasion of the Thorp Centenary, in Pawtucket, R. I., April 26. Ira Draper will be remembered at the celebration of the 100th anniversary of ring spinning by John Thorp, as his inventions have been as much the basis of the perfection of the loom as Thorp's have been the foundation of mass production in spinning.

Draper's inventions have served as the basis for all later loom developments. His first, in 1816, was a rotary temple, the use of which enabled a weaver to run two looms where before he had been able to run only one. The present day Northrup automatic loom, first brought out by the Draper Corporation in 1894, permits a weaver to operate 48 and on very simple weaves up to 100 looms.

Now Built With 432 Spindles.

Thorp's introduction of ring spinning in 1826 came at a time when a spinning frame was built with four to not more than eight spindles and with but one side. With his mechanism as the basis spinning frames have since been developed to a point where they are now built with up to 432 spindles, 216 on each side and with a speed of 10,000 turns per minute. George Draper, son of Ira Draper, led in the development of the high speed spindle which made ring spinning supercede mule spinning.

The Draper Corporation had its beginning when Ira Draper began trying to put his improved loom temples on the market, about 1816. On April 1, 1829, he took out another patent on loom temples, covering an improvement on his early mounting device. In 1830 he sold these two patents to a son, James, who at once undertook to bring them to the attention of the cotton manufacturers of the time.

James Draper was the first textile machinery manufacturer to use newspaper advertising to sell machinery. His advertisement appeared in the initial edition of the Boston Transcript of July 24. He continued the business until March, 1837, when he took into partnership his half-brother, E. D. Draper, who assumed control of the business. In 1842, E. D. Draper moved to Hopedale, Mass., and became a member of the Hopedale Community, established by Rev. Adin Ballou.

George Draper, who is credited with having built up the Draper Corporation, moved to Hopedale in 1853 and formed with his brother the partnership of E. D. & G. Draper. This partnership was the real foundation of the present great corporation which claims to have cut in half the cost of spinning, spooling and weaving.

Dutcher's Interest Purchased.

The partnership purchased, in 1854, Elihu Dutcher's interest in

temple patents after Elihu and Warren W. Dutcher, of North Bennington, Vt., had taken out two patents on an entirely new type of loom temple. The firm of W. W. Dutcher & Co., comprising W. W. Dutcher, E. D. and G. Draper, was formed to manufacture this type of loom temples and manufactured them at Bennington, Vt., until May, 1856, when Mr. Dutcher moved to Hopedale. Mr. Dutcher was another of the early textile inventors having taken out more than 20 patents on temples and machines for making temples.

The business from 1853, when George Draper went to Hopedale, until his death in 1887, can be roughly divided into two parts, the period up to 1870 and the period from 1870 to 1887. In the early period the largest share of the business, in addition to temples, was in improvements of different motions on looms for plain weaving. During this time the Bartlett, Shepard and Young let-offs and the Stearns shuttle motion were introduced and adopted by a large number of the mills. The Stearns shuttle motion was the successful development of which the patent of 1846, to H. W. Dutcher, was the pioneer in breaking away from the overhead pick motion and is now in universal use in this country in modified forms.

Spinning Room Improvements.

Tremendous improvements in the spinning room came, beginning about 1870 with the Sawyer and later the Rabbeth spindle and the Carroll double spinning ring. These inventions have practically driven the more costly mule spinning from America, except on the very finest numbers. The reduction in cost of spinning runs into hundreds of millions of dollars and the savings have been passed on to purchasers of textiles.

Northrup automatic loom, brought out by Draper Corporation in 1894, followed extensive and expensive experiments over a period of about 12 years. The loom does not destroy the art of weaving; it can be used to do the same things as were done by hand in India centuries ago and produces better fabrics.

In December, 1896, the present Draper company was organized under the laws of Maine, taking over the property and business of the Hopedale Machine Company, Hopedale Machine Screw Company, Dutcher Temple Company, George Draper & Sons and the United States patents and business of the Northrup Loom Company. Prior to that time, Hopedale Furnace Company and the Hopedale Goods Company had been absorbed by the Hopedale Machine Company. This united and brought under one corporate body all the Hopedale interests and since January 1, 1927, all this business has been done by the Draper Corporation. Some months ago the Hopedale Company, at Milford, Mass., was taken over by the Draper Corporation.

B. H. Dristow Draper, present head of the corporation, is the fourth generation from Ira Draper in direct line, being the elder son of the late Governor Draper.

E. F. HOUGHTON & CO.

LET US PAY HALF YOUR LUBRICATION BILL

Thousands are effecting this
economy by use of

Houghton's Absorbed Oils

Reg. U. S. Pat. Off.

"The Oils That Stay Put"

There is a clear saving of 50% in the amount of oil used, and a further reduction of 75% in the cost of maintenance and supervision—a two-fold economy that will more than halve your lubrication bill.

Do not confuse HOUGHTON'S ABSORBED OILS
with ordinary lubricating oils

Only HOUGHTON'S ABSORBED OILS will . . .

Prevent metal-to-metal contact - - 100%

Reduce maintenance costs - - - 75%

Outlast ordinary machinery oils - - 50%

They will not gum, thicken, harden or be thrown
from the bearing.

Remember that E. F. Houghton & Company's
Advertisements Are Facts!

(After reading this advertisement send for a
HOUGHTON MAN, and he will explain how
you can halve your bill in the next twelve
months.)

ATLANTA, GA.
BALTIMORE, MD.
BIRMINGHAM, ALA.
CINCINNATI, OHIO.

NORTH PHILADELPHIA, PA.
RICHMOND, VA. ST. LOUIS, MO.
"AND ALL OVER THE WORLD"

GREENSBORO, N.C.
GREENVILLE, S.C.
HOUSTON, TEXAS.
LOUISVILLE, KY.

COTTON MACHINERY

If you are interested in Increased Production and durability of equipment you are invited to investigate the merits of our machinery.

— We Build —

ROVING WASTE OPENERS
HOPPER BALE OPENERS
SELF FEEDING OPENERS
CRIGHTON OPENERS
BUCKLEY OPENERS

INTERMEDIATE
AND FINISHER LAPPERS
COTTON CONVEYING
SYSTEMS

REVOLVING FLAT CARDS

DRAWING FRAMES
(WITH ELECTRIC OR MECHANICAL STOP)

SLUBBING, INTERMEDIATE
AND ROVING FRAMES

SPINNING FRAMES AND
TWISTERS
(BAND OR TAPE DRIVEN)

RINGS—FLUTED ROLLS—
SPINDLES

Write for descriptive Bulletins

H & B
American Machine Co.

Pawtucket, R. I.

Southern Office

814-816 Atlanta Trust Co. Bldg.

Atlanta, Ga.

Corn Starch*

W. R. Cathcart, A.M., Ph.D., Technical Director, Corn Products Refining Company, New York City.

IN the United States, starch usually means corn starch unless otherwise specified. Naturally so, since corn is our largest and, from the financial standpoint, most important agricultural product, surpassing even cotton in value. Of course, potatoes, wheat, rice, tapioca, sago, and other products are sources of starch; but none approach our great American corn in this respect—abundant, economical, and adapted to continuous specialized manufacturing processes.

Corn starch is pre-eminently the starch of the textile industry. The consumption of corn starch in the United States is in excess of all other starches combined. The corn products industry has had a steady, healthy growth until now this industry consumes about one-third of the crop which leaves the farms and reaches the primary markets. The consumption for 1926 was more than 82,000,000 bushels and for 1927 more than 85,500,000 bushels, with indications of a still larger consumption for 1928.

The exportation of corn, in the form of manufactured products, exceeds the exports of corn grain, excepting exports to contiguous countries—Canada, Mexico and Cuba.

This industry now ranks with the basic industries of the country—steel, paper, textiles, etc. The industries which it serves extend from textiles and iron to dolls. The population it nourishes includes the premature infant, the healthy growing child, the adult, the invalid, as well as the prize cow and hog; and last, but by no means least, it is the largest consumer of "cash corn." The importance of the corn products industry in relation to general economic welfare is established beyond all question. The corn grower, as well as the textile manufacturer, and others, are dependent upon its growth and development.

Before passing on to the main topic of discussion, it will doubtless be of interest to outline briefly the manufacturing processes involved in producing starch and its allied products. The main constituents of the grain of corn are the integument or hull, the firm, the endosperm, consisting of starch and gluten, and the solubles, for the most part on or near the surface of the grain. The operations involved in separating these several constituents are largely mechanical and may be followed on the accompanying flow sheet. (Screen.) This shows briefly how starch, so essential to the proper and satisfactory manufacture of textile products, is finally prepared for use in various forms and modifications.

Sizing.

The importance of sizing, especially in the field of cotton-textile manufacture, is clearly receiving more attention and thought in recent years than in the past. This is doubtless due to the highly competition that sizing is an important fac-

tor in production costs—not the cost of sizing as such, but the effect it has upon the quality and quantity of the fabric, which has been brought about by greatly increased productive capacity and the realization of goods produced.

The object of sizing yarn is to increase the strength and weaving quality and, in a minor degree, to add weight to the fabric, although in many instances this last factor is given much emphasis.

In general, a sizing mixture should contain three essential ingredients—an agglutinant or adhesive, a lubricant, and a hygroscopic or moisture-absorbing agent. The term "softener" is rather loosely used and is applied often to both the lubricant and hygroscopic agent.

Agglutinants.

In this class are to be included the various kinds and types of starches—corn, potato, wheat, sago, tapioca, and the dextrines derived therefrom, as well as certain natural or vegetable gums, such as gum tragacanth, gum tragacanth, gum arabic, etc.

For the cotton-textile industry, at least in the United States, the most widely used and most important agglutinant is corn starch. The valuable, inherent properties and susceptibility to standardized modification have established corn starch in this foremost position. While it is true that other starches have many desirable properties for special fields, the instances are rare where these can not be successfully replaced by a properly selected and standardized corn starch.

The various types of dextrines, derived from the several starches mentioned, are almost never used alone for sizing yarn, but frequently in special formulae together with starch of some kind. The principal reasons for this are that dextrines alone tend to make the yarn brittle, and they become sticky in the presence of moisture.

The vegetable gums for general sizing purposes are never used alone. They have value, but for the most part are too expensive to be used in large quantity.

Lubricants.

This ingredient comprises vegetable and animal fats or oils, the chemically allied vegetable or animal waxes, and mineral oils and waxes, such as paraffin wax.

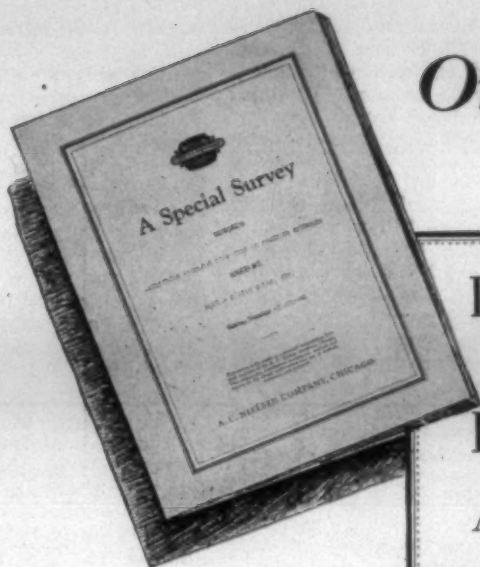
The mineral products, while possessing desirable lubricating properties and therefore sizing values, are generally not favored on account of total lack of saponifying properties. Being hydrocarbons, they are not affected by alkalis, do not form soaps, and, therefore, are removed with difficulty from the fibre in the preparatory processes for bleaching, finishing and dyeing.

The vegetable and animal waxes occupy an intermediate position between true fats and the mineral products. They saponify, but not easily. That these materials possess sizing value is well established.

The animal and vegetable fats, re-

*Lecture before Textile School N. C. State College.

(Continued on Page 35)



On 22 Frames in the Morgan Mills

Roll Covering Costs		
Reduced	-	52.9%
Production Increased		6.01%
Annual Saving Over		\$1600.00

STARTING with a few Armstrong's Seamless Cork Cots on a spinning frame in July, 1926, the Morgan Cotton Mills, Inc., now have them on all front rolls of the slubbers, intermediates, speeders and spinning frames of the Company's three mills at Laurel Hill, N. C.

In order to determine the savings due to the use of cork, the A. C. Nielsen Company, a firm of investigating engineers, surveyed the performance of twenty-two spinning frames in the Richmond Mill and, among other things, found that the quality of the yarn was as good or better than with leather, that production had been increased 6.01%, that the annual cost of covering rolls was reduced 52.9%, and that the total saving on these frames was \$1600.00 per year—all due to the use of Armstrong's Seamless Cork Cots.

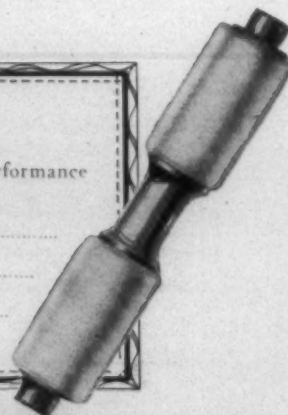
The complete report of the Nielsen engineer will be found of interest to all mill operating and administrative executives. A copy will be sent promptly upon request to Armstrong Cork Company, 134 Twenty-third Street, Pittsburgh, Pa.

Armstrong's Seamless Cork Cots

for Cotton Mills



ARMSTRONG CORK COMPANY, 134 Twenty-third Street, Pittsburgh, Pa. Please send me without obligation a copy of the Nielsen Survey on the performance of Armstrong's Cork Cots in the Morgan Cotton Mills.	
Name.....	
Company.....	
Address.....	
City.....	State.....



"The Safety Margin"

IN YARN CONVERTING

BETWEEN the creation of the idea and actual weaving of delicately beautiful effects with Rayon lies the vital period of conversion. It is through this period that a broad margin of safety must be carefully preserved if the quality of the ultimate fabric is to be protected.

The Duplan Silk Corporation has reduced to a minimum the hazards incidental to converting yarns for every weaving or knitting purpose. Duplan offers to the trade through its well equipped laboratories and extraordinary facilities for the careful conversion of yarns, the benefit of many years' research and experience.

(Commission Dept.)

DUPLAN SILK CORPORATION

135 Madison Ave. Hospital Trust Bldg. Johnston Bldg.
New York, N. Y. Providence, R. I. Charlotte, N. C.
Mills:
Hazleton, Pa. Kingston, Pa. Nanticoke, Pa.

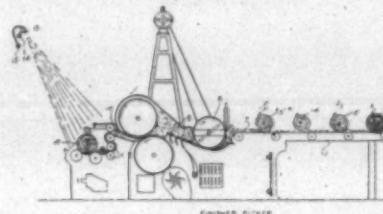
DUPLAN

New Process for Humidifying Finisher Laps

James L. Byers and Robert S. Mitchem, of Alexander City, Ala., have patented an improved process for humidifying cotton laps and particularly finisher cotton laps.

They describe the invention as follows:

"In the spinning of cotton, usually the cotton leaves the picker room practically bone dry and thus, is short about eight per cent of the moisture which the fiber requires for its proper strength and treatment. Various means have been employed to restore the humidity to the cotton and in the present general practice the humidification of the carding room and spinning room has been relied upon to restore the proper moisture content in the cotton fiber. It has also been suggested, though so far as we are aware it has not been practiced, to spray the raw cotton when it is first rolled into sheets or laps. The objection to the latter process is that the cotton sheet or lap after being sprayed must be subjected to a number of treatments before it leaves the finisher picker, and in these treatments this added moisture is largely lost so that the actual moisture content of the cotton fiber in the finisher lap cannot be accurately controlled.



Moreover, where the moisture is applied to the cotton during the preliminary picking treatment, if sufficient moisture is introduced to leave the finisher lap with eight per cent of moisture, it will be found that there is too much moisture in the cotton for its proper treatment and effective cleaning in the breaker and intermediate pickers.

"In order that the problem of properly and accurately humidifying the finisher laps may be solved, they have conceived the idea of withholding the spraying of the fiber until it reaches the finisher picker and we thus apply the moisture by spraying at a point where treatment of the lap in an unhumidified atmosphere has been completed and it will be noted that the sprayed lap as it leaves the finisher picker goes directly to the carding room where the humidified atmosphere will prevent further loss of moisture from the cotton laps. Hence, it follows that an accurate and correct amount of moisture can be added to the laps at the finisher picker and that the moistened cotton can be made to retain this amount of added moisture due to the fact that it receives no further treatment in unhumidified atmosphere.

"As illustrative of an apparatus capable of carrying out our above process, we show in the drawings in side elevation a finisher picker com-

prising a lap apron frame 1 having stop bearings 2 to receive the pins of the several laps 3, 4, 5 and 6 which are to be fed by means of the Apron 7 to a beater 8 whence the treated fiber passes between the screens in a screen chamber 9 which discharges the cotton in a layer 10 that passes through suitable calendar rolls 11 and is wound into the finisher lap 12. The laps 3, 4, 5 and 6 from which the cotton layers are supplied to the apron usually come to the finisher picker from an intermediate picker, the laps having been first treated on a breaker picker.

"We arrange an atomizer spray 13 to which air and water are supplied respectively by the pipes 14 and 15 and which will operate, in the manner well understood in this art, to direct a spray both on the layer 10 and on the lap 12 thus applying moisture to both sides of the lap layers as wound into the lap, and the finisher lap, as thus humidified, is transported directly to the carding room where the humidification of the atmosphere will prevent the evaporation of the moisture introduced into the lap by the spray.

"Our invention can of course be carried out by other means of introducing moisture than the spray shown, and it is contemplated that any practical and convenient means for moistening the layer of cotton that is wound into the finisher lap at the finisher picker may be employed."

Bemberg Undecided On Third Unit

No definite steps have as yet been decided upon by the American Bemberg Corporation in reference to further units in the corporation's plant at Johnson City, Tenn.

The corporation now has the first factory unit in full operation, producing 7,500 pounds of Bemberg yarn daily. The second unit is being built and will be in production in the autumn.

Demand for Bemberg yarns, the corporation states, is greater than the present production and will easily take care of the additional output of the second unit.

Work to Start Soon On DuPont Plant

Richmond, Va.—Actual construction of the Du Pont rayon plant at Amthill, near Richmond, will be under way in six weeks, according to Everett Ackard, head of the construction department of the company. Work of constructing spur tracks from the main line of the Seaboard Air Line Railway to Amthill is in progress.

It is expected that construction of the plant, which is to represent an outlay of approximately \$8,000,000, will require at least a year. Upward of 3,000 men and women will be employed it is stated.

A MARKET *that has the* ABILITY TO BUY



*This rich section,
only 40% of the
area of the Caroli-
nas, OUT-PURCHASES
each of twenty-two
entire states!*



HERE in Piedmont Carolinas is real buying power, based on rich agriculture (high-quality cotton, tobacco and truck) and on thriving industry. Buying power that exceeds a total of five whole states. Buying power that exceeds each of twenty-two states!

This ability to buy goods is all the more remarkable since this section is only 40% of the area of the Carolinas. It shows the economic progress that has come with manufacturing development and industrial growth.

MANUFACTURERS here find advantages they cannot find elsewhere—all elements of low production cost meeting at a common focal point, and effecting production economies that equal a substantial extra dividend on a year's operations.

Facts, based on the actual cost data of plants in operation here, have proved the case to the satisfaction of manufacturers from many old, highly industrialized parts of the country. So well were the facts proved to them that 72 have located

here during the last 12 months, many of them migrating from high-production-cost areas.

Back of this influx of new enterprises are economic forces that cannot be ignored: raw material resources, a steady supply of high class labor, power and transportation facilities far above the average, legislation favorable to the development of manufacture, a bracing upland summer climate combined with mild winters, and living conditions that are unusually pleasant.

Do you want the facts—detailed, explicit facts—about the industrial possibilities here, of particular advantage to your business?

You will be interested in *Piedmont Carolinas, Where Wealth Awaits You*. Brief. Condensed. Full of data you can use.

Sent, without charge or obligation, to men responsible for executive management. Send for your copy—today. Address Industrial Department, Room 713, Mercantile Building, Charlotte, N. C.



A GOOD PLACE To LIVE and WORK

Not only is Piedmont Carolinas a land of opportunity for the business man—it is, as well, a section noted for its unusually pleasant living conditions.

Summer temperatures are equal to those of Pennsylvania, with its Poconos and Alleghanies. The Berkshires and Catskills have their counterparts in bracing upland sections of the Blue Ridge. Cities are uncrowded, with fine schools and every modern comfort. Life is neighborly and friendly. In addition, the recreation centers of the Carolinas are accessible in a few hours over splendid roads—the mountains, the seashore, the sandhills, where hunting, fishing, sports and golf are world renowned.

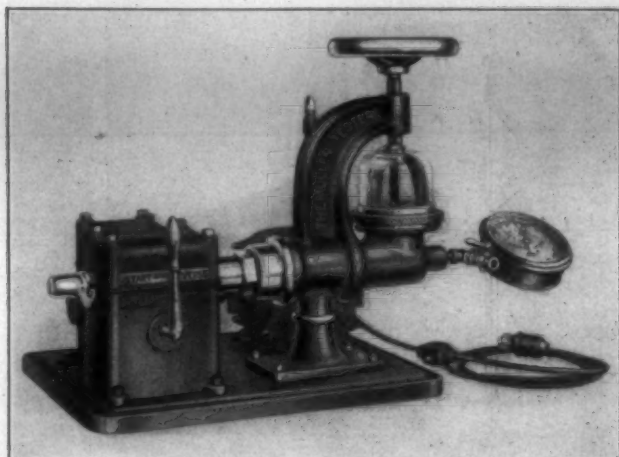
DUKE POWER COMPANY

{ OWNERS OF SOUTHERN POWER COMPANY, SOUTHERN PUBLIC UTILITIES COMPANY & ALLIED INTERESTS }

THE JUMBO

Motor Driven

MULLEN TESTER



The Mullen test is recognized as the standard for ascertaining the bursting strength of textiles, hosiery, knit goods, corrugated, fibre and box boards, wrapping and sack paper and miscellaneous materials.

The Jumbo Motor Driven Tester eliminates entirely the human element from every test, because operation is under absolute control and all tests must necessarily be made under precisely the same conditions.

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Modern Humidifying Methods*

William B. Hodge, Vice-President, Parks-Cramer Company, Charlotte, N. C.

FEW but those who daily deal with its problems realize that the science of humidification is not as simple and subject to the rule of thumb as it once was. There has taken place in the last few years a greater practical advance in the humidifying art than in the preceding score of years, largely due, I believe, to a more intensive study of the requirements for and the advantages of adequate and well-regulated moisture and temperature in work rooms.

Almost every industry has demanded increased production and better quality of its product, and this has been a great incentive to careful study and more intensive development in the humidifying field.

In order to get started right, it might be worth while to review some of the fundamental ideas which are essential to be held in mind when considering humidifying facts. In the first place, let us consider the term "humidity." The air we breathe represents a mixture of gases: oxygen, nitrogen, carbonic acid gas, along with traces of rare gases, such as helium, etc., as well as moisture or water vapor. Water vapor is just as much a distinct gas as carbonic acid or oxygen or any other constituent of the air. When the air is practically free from water vapor, we have become accustomed to call it "dry air;" and when it contains a large amount of water vapor—as much as it can hold—in such a case we may it is "saturated."

Saturated Air.

The amount of water vapor or number of grains in weight per cubic foot of volume of what we call "saturated" air depends upon its temperature, and air at a high temperature is capable of holding in suspension far more water vapor than it can hold at a low temperature. For instance, a cubic foot of air at 70 degrees temperature will hold 7.98 grains of water vapor, at which point we term it "saturated," or at 100 per cent relative humidity. The same cubic foot of air raised to a temperature of 100 degrees will require 19.77 grains of water vapor to bring it to saturation. This range of temperature from 70 to 100 degrees is not excessive and is commonly met with in mill operation, and from this fact alone one can readily see how much greater evaporative capacity is required to maintain the same humidity during the hot months than during the cooler seasons of the year.

If, in a cubic foot of air at 70 degrees temperature, we find there are but 3.99 grains of water vapor, or one-half the amount required to saturate it, we say that this air has a relative humidity of 50 per cent. The term "relative humidity" always represents the percentage or proportion of the number of grains of water vapor actually present in a cubic foot of space, compared to what that cubic foot of space could hold at the same temperature.

Humidity can always be properly expressed in two ways: either as "absolute" humidity, where reference is made to the number of grains of water vapor per cubic foot of space; or, secondly, "relative" humidity, which represents the ratio between the number of grains of water vapor present as compared to the number it could hold at saturation. The expression "relative humidity" is usually employed for convenience.

The method of measuring humidity, which originally was rather complex, although exact in the hands of experts, has been very much simplified; and with the use of two thermometers, one with a naked bulb and the other with the bulb covered with a moistened fabric, which pair of thermometers can be used either as a stationary or a moving instrument, along with a set of standard humidity tables, it is possible to determine with great practical accuracy all of the factors relating to the air so far as its moisture content is concerned.

The moving, or sling, thermometers (or, as they have become known in the trade, "sling psychrometers") used exclusively by the United States Weather Bureau in their daily hygrometric observations, afford the highest accuracy in measuring the wet bulb depression, the relative humidity, the absolute temperature, and the dew point. So, given a set of the United States Weather Bureau tables and a sling psychrometer, we are equipped to accurately measure the several characteristics of water vapor as it exists in the atmosphere.

Properties of Water Vapor.

An illustration and comparison may aid in better visualizing some of the properties of water vapor.

In the first place, water vapor is colorless. The space above the water level in a gauge glass of a boiler appears clear, yet we know it is filled with steam. So water vapor at ordinary room temperature can not be seen. What is seen, that resembles fog, issuing from a humidifier is finely divided free moisture. The finer it is divided, the more quickly it is evaporated into the atmosphere, in the form of a true water vapor. And it must always be remembered that only as water is in the vapor form does it become useful in textile conditioning. Free moisture in or on the stock is always dangerous and can not be tolerated.

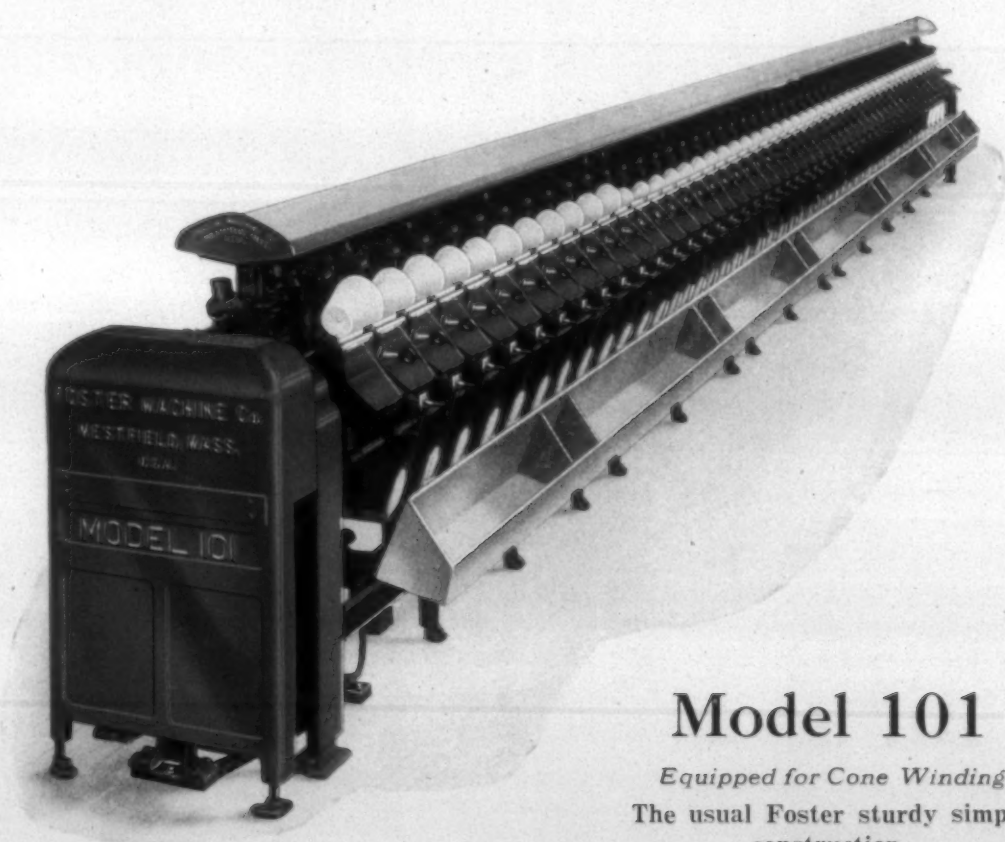
Now, water vapor is a colorless gas. One of the well-known laws of gases is that a gas uniformly fills the space it occupies; that is, the molecules of a gas repel each other and proceed away from each until they finally reach the wall of the container. Water vapor thus confined produces an outward pressure, and this we term "vapor pressure." Roughly speaking, humidity may be visualized as a sort of vapor pressure. As the evaporation of water in an inclosure proceeds, the vapor pressure builds up, and coincidentally the relative humidity rises.

(Continued on Page 37)

*Address at Textile School of N. C. State College.

Foster Winding

At the Philadelphia Knitting Arts Exhibition April 16-20th, we will show, up-to-date developments in cone winding of cotton, mercerized and worsted yarns. Also the new Foster Model 75 Precise Wind Machine winding cones for Silk and Rayon Knitting.



Model 101

Equipped for Cone Winding
The usual Foster sturdy simple construction.

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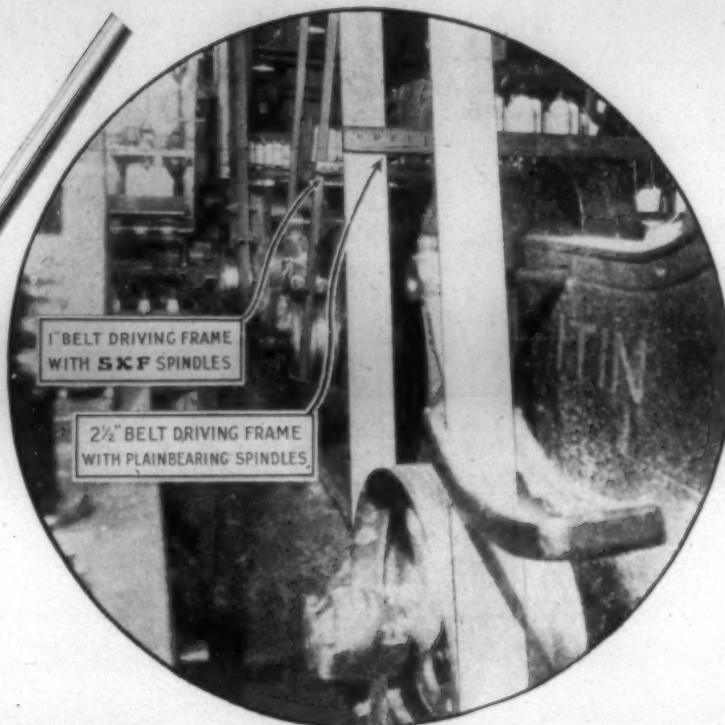
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**ADVANTAGES OF THE
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ROLLER BEARING SPINDLE
BOLSTER**

Power input per frame reduced by 25 to 35 percent.
Oiling reduced to a once-a-year detail. In one mill SKF Roller Bearing Spindles have been running for two years with oil chambers sealed.

In a comparative test, one H.P. drove only 50 plain bearing spindles. But under the same test, one H.P. drove 72 SKF Roller Bearing Spindles.



SKF Roller Bearing Spindles Cut Belt Size to Less Than Half

THE Monroe Cotton Mills, Monroe, Georgia, are driving a spinning frame equipped with SKF Roller Bearing Spindles with a 1" belt whereas similar frames equipped with plain bearing spindles require 2½" belts.

For years the cylinders of the spinning frames in this mill have been running on SKF Anti-Friction Bearings. When the SKF Roller Bearing Spindle was brought out they immediately placed an order to equip one frame. The superintendent was so sure of the value of SKF spindles that

he discarded the regular two and one-half-inch belt and installed a one-inch belt.

Comparative tests showed conclusively that the cylinder speed was even a trifle better with the smaller belt than that of the machine equipped with the large belt and plain bearing spindles. Both frames are driven by the same motor. The Superintendent of the mill is enthusiastic not only of this advantage but many others which have been made possible by the installation of SKF Roller Bearing Spindles.

SKF INDUSTRIES, INC., 40 East 34th Street, New York, N. Y.

1999

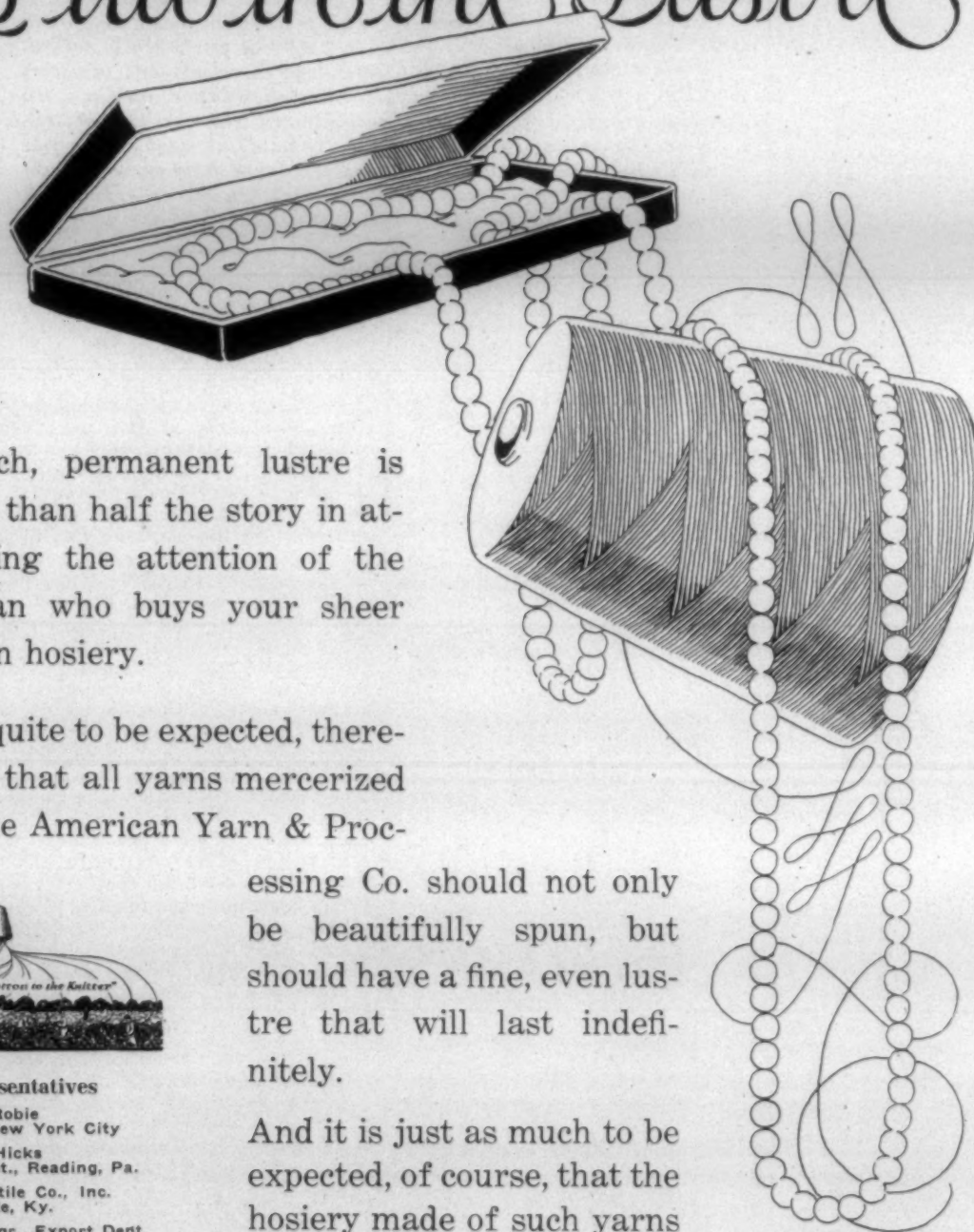
SKF

Ball Bearings



Roller Bearings

It's all in the Lustre



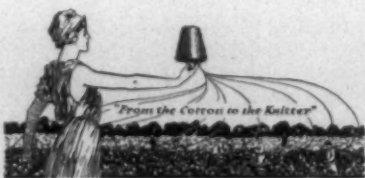
A rich, permanent lustre is more than half the story in attracting the attention of the woman who buys your sheer cotton hosiery.

It is quite to be expected, therefore, that all yarns mercerized by the American Yarn & Proc-

essing Co. should not only be beautifully spun, but should have a fine, even lustre that will last indefinitely.

And it is just as much to be expected, of course, that the hosiery made of such yarns will have an uniform market success in competition with merchandise finished by less perfect spinning and mercerizing processes.

Ask for price—all numbers



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American Yarn & Processing Co.

Mount Holly, North Carolina

Practical Discussions By Practical Men

Picker Room Fires.

Editor:

As we are much troubled with fires in our picker room, would like to ask for information through these columns as to what is usually done to prevent such fires, especially when they originate from many unknown causes.

Management.

Spiral Spur Gear Drive.

I have heard that a spur gear can be so arranged that it will drive a spiral gear and that the spiral gear will in turn drive a spur gear. That is, I understand that a spiral gear can be so placed between two spur gears that it can replace a bevel gear drive. May I learn through these columns how this is accomplished?

Spiral.

Breaking 80 Ends or 160 Ends.

Editor:

When testing yarns for breaking strength and using the conventional skein of 80 threads and 120 yards long, am I breaking 80 ends or breaking 160 ends? This puzzles me very much, and I would appreciate some advice through these columns from some experts who absolutely know what they are talking about.

Tester.

Sharpening Lap Driving Rolls.

Editor:

As the rolls on which the lap rests and is driven thereby, are very dull, they slip by and do not always drive right. Shall we buy new ones, or can this be remedied otherwise?

Old Mill.

Variation in Yarn Numbers.

Editor:

What do you consider a reasonable variation on counts No. 8s using part card strips and low grade cotton?

C. L.

Changing Speed.

Editor:

I have a problem on my hands which I cannot work out. I have a spindle on a winder which is 700 r.p.m. I get this speed with a 24-inch pulley on the main line of shafting. Now, I will reduce the speed $\frac{1}{4}$, or 25 per cent, by driving with an 18-inch pulley. This gives me a speed of 525 r.p.m. Now, I will reduce the speed 1-6, or 16 2-3 per cent, and drive my spindles from a 5-inch cylinder on the winder instead of from a 6-inch cylinder. This gives me a speed of the spindles as 437 r.p.m. Now, I have reduced my speed $\frac{1}{4}$, or 25 per cent, and 1-6, or 16 2-3 per cent, or a total of 41 2-3 per cent. But 41 2-3 per cent of 700 is 291 r.p.m. When as a matter of fact I have reduced

The Practical Discussion Department of the Southern Textile Bulletin is open to all readers whether they are interested in seeking information on technical questions or are willing to help "the other fellow" who has experienced trouble in some phase of his work.

The questions and answers are from practical men and have often proved extremely valuable in giving help when it was urgently needed.

The interchange of ideas between superintendents and overseers develops a great deal of worth while information that results in much practical benefit to the men who are concerned with similar problems.

You are invited to make free use of this department and to join in discussing various problems that are mentioned from week to week. Do not hesitate because you do not feel that you are an experienced writer. We will take care of that part of it.—Editor.

my speed only 263 r.p.m. Why is it that my reduction of 263 r.p.m. match up with the total percentage as figured by the change?

Speed.

Answer to Second Hand.

Editor:

Second hand wants to know which way to cross a crossed belt which drives on the tight and loose pulley of a machine and what difference it makes. As a general rule a good fixer or mechanic will cross a crossed belt in such a manner that the belt will run onto the loose pulley with the up stroke side of the belt between the tight pulley and the down stroke side passing around the loose pulley. The reason for this is that there is less danger of a belt creeping onto the tight pulley from the loose pulley, if the up stroke side of the belt fences the down stroke away and makes it safer. So it does make a general difference as to which way a belt is crossed.

H. D.

Answer to Slasher.

Editor:

Slasher wants to know how to figure the size used on his slashers so as to find out the percentage of the size per weight of the yarn used. What relative percentage to the total weight is the size, and how to take into consideration the hard and the soft wastes in connection with this problem?

In order to show how this problem can be worked out, let us take a set of section beams weighing 2,000 pounds of net yarn to be slashed. But in passing this amount of yarn through the slashers there remains on the section beams 10 pounds of waste. This equals one-half of 1 per cent of the 2,000 pounds of net yarn which was started in process. As this is soft waste, and which was not slashed, we need not consider this any more in the problem. This leaves 1,990 pounds of yarn which was slashed, including the hard waste which we will call 10½ pounds. This 10½ pounds of sized yarn waste must be added to the total net weight of the warp yarn sized as follows:

Weight of sized warp yarn (lbs.)	2079
Weight of sized waste	10½
Total	2089½

From the above total weight must now be subtracted the net yarn weight before slashing, thus: 2089½ less 1,990 equals 99½ pounds. Now, in order to ascertain the percentage of the size used on the net yarn put through the slasher (viz., 1,990 pounds) is to divide the 99½ pounds of size applied by 1,990. This will equal 5 per cent. Again, to ascertain what percentage of the total finished weight (yarn and size) the size is, we must divide the total weight of the sized yarn into the actual weight of the size added to the net yarn. Although there were 1,990 pounds of yarn sized, there were 10½ pounds of waste. But as 5 per cent of the hard waste is size, there remains only 10 pounds of yarn to be deducted from the 1,990 pounds of yarn consumed. This leaves 1,980 pounds of net raw yarn which remains as finished sized yarn within the total of the 2,079 pounds which represents both the yarn and the size on the yarn. To find the amount of the size used is to find the difference between the gross weight of the 2,079 pounds and the net yarn weight of the 1,980 pounds and which equals 99 pounds. The relationship of this 99 pounds to the gross weight can be found by dividing 99 by 2,079 and which equals 4 76-100 per cent.

That is, 4 76-100 per cent of the gross weight is 99 pounds of size material, or 5 per cent of 1,980 pounds of net yarn also equals 99 pounds of size materials. It work right both ways. It is merely a case of knowing what percentage the size is of either the gross weight or of the net weighed yarn.

H. M.

Answer to Idle.

Editor:

I noticed that Idle wants to know how to ascertain the average spindles stopped for a day's run. He may proceed in this way: Let us suppose there are 2,000 spindles stopped two hours out of the ten hours of a day's run, how many were stopped on the average for ten hours.

The rule is to divide the 2,000 spindles by the 10 hours of the day's run, which equals 200, and then to multiply this by the two hours during which these spindles were stopped. 200 multiplied by 2 equals 400, or the average spindles which were stopped all day. Spinner.

Answer to Balloon.

Editor:

In answer to the question by Balloon for a remedy to prevent ballooning, will you please publish my ways and means of preventing the ends from ballooning at the bottom of the bobbins after doffing on spinning frames:

1. Raise the ring rail and doff as much sooner as necessary.
2. Put on heavier travelers if the work will stand it.
3. Put on larger separators.
4. Make the bobbin barrel smaller at the bottom if they are now too large.
5. Make the yarn number lighter if the limit is not against orders or not against profit earning.
6. Increase the speed of the frame if not going fast enough.
7. Decrease the speed if going too fast.
8. Be sure all bells and bands are not too slack and slipping.
9. Drop the thread boards all you can without having the ends break at the top.
10. Adopt the movable thread board system so they will be raised with the ring rail at the top.
11. Adopt the variable speed system so as to run at the right speed to prevent ballooning at the bottom, and very fast during the building of the bobbin one inch above the bottom until within one inch of the top where the speed should be the slowest.

Mass.

Answer to Winder.

Editor:

Taking up Winder's question, who desires to learn what gear to use on a precision winder in order to change the winding from 2½ times to three times around the tube during one traverse length? The rule is to multiply the gear now in use by the present number of times that the yarn winds around during one traverse length, and then to divide by the times around wanted, thus: $24 \times 2\frac{1}{2} = 60$. $60 \div 3 = 20$ teeth gear wanted.

Textile.

Answer to Troubled.

Editor:

"Troubled" has asked a question regarding how to fill his warp wound double head bobbins without making hollow places, nor overflowing them at one or both ends? His trouble can be overcome by making the traverse a little longer to start the building after doffing. This will slightly overflow the bob-

bins at both ends at the start. Now set the picking motion so as to have it pick only one or more teeth which will gradually contract the traverse length. When the bobbins are ready to doff they will be filled perfectly even without having any hollow places at either end. It will take a little time and patience to get the right picking and timing to fill the bobbins right without overflowing and having the yarn run over or slubbing off at the ends.

Garland C. Martin.

The Overseer's Daily Commandments.

1. Be fair. Have no favorites on the job and no scape-goats. A foreman has to act as judge many times a day, therefore he must be just.
2. Make few promises and keep them. Your job requires a high standard of truth and honor.
3. Don't waste anger. Use it. Anger is valuable and should not be used carelessly. Save your forceful language for special occasions.
4. Always hear the other side. Never blame a worker until he has been given a chance to give his point of view.
5. Don't hold malice. When you have had to scold a worker, go to him later and explain his faults in a friendly way.
6. Notice good work as well as bad. Let the worker see you can appreciate as well as condemn.
7. Watch for special ability. Take a keen human interest in your work-

ers. Put each one where he can do his best.

8. Take your full share of the blame, at all times.

9. Never show disappointment. Never let yourself be beaten. A foreman should have perseverance and the never say die spirit.

Points for Second Hands.

1. Do you know what your job is and what kind of a man it takes to master your job?

2. Do you do your best at all times? Are you working for the company's interest as well as your own?

3. How many times a day do you turn your head to keep from seeing a worker do something wrong when you know it's your duty to teach him the right way?

4. Do you talk "safety first" to all of your workmen?

5. Do you see that your oiler runs his job? What is his job? How many times a week do you talk with him? Do you know he is the important man on your job?

6. Do you allow your section men to discharge the help and send them out without your knowing if they had a fair deal or not? Do you know that it costs the company to change help?

7. Do you study your workers and put each one where he can do his best? Are they properly instructed?

8. Is everything on your job kept clean? Do you know the cleaner your job the more interested the workers?

9. Do you try to keep the good will of your workers? It takes co-operation to make a success of anything.

J. B. BOYTER,
Cordova, Ala.

Speaks on Chemical Control

Clemson College, S. C.—Dr. Robert W. Jaeger, research engineer of Armour & Co., Chicago, Ill., addressed the textile students, faculty and visitors at Clemson College upon the subject of "Some Applications of Chemical Control to the Textile Industry." Among the visitors present were Paul Haddock, of the A. Klipstein Company; J. G. Schaeffer, of the J. B. Ford Company, and W. L. Gaffney, of Armour & Co., all of Charlotte, N. C. Joseph Duckworth, of the Klipstein Company, Greenville, also attended and addressed the students.

Dr. Jaeger pointed out the fact that many of the textile mills are adopting chemical control methods in the plants with excellent results, while others who have failed to avail themselves of these recent advances in the fields of science are daily experiencing more and more trouble, and having greater difficulty in meeting the competition of the more progressive mills.

He particularly mentioned the many phases and advantages of the application of the pH control factor in almost every stage of the wet processes of textiles from the kier boiling of cotton and scouring of

wool or silk, to the laundering of the bleached, dyed and printed goods. The subject of soaps and their various uses also received considerable attention.

New Plant For Duke Power Company

Plans for building a new steam-electric power station near Mount Holly, N. C., eventually to have an output of 600,000 horsepower, have been announced by Duke Power Company, of Charlotte. The first unit, to generate 150,000 H. P., is to be built at once. Construction work has started. Cost of this unit will be about \$10,000,000.

When the entire project is completed it will be the largest of its kind in the South and probably in the country, it is claimed. It will give the company an output almost equal to the present hydro-electric capacity of all the Duke Power Company plants, which is now 713,000 horsepower. The present steam generating capacity is 240,000 horsepower.

The new plant to be located at River Bend, on the Catawba river, 12 miles from Charlotte. It will be built in units of 150,000 horsepower each. The initial generating equipment will be two steam turbo-generators of 75,000 horsepower each. The plant is being built to meet the constantly increasing demand for power. Company officials cited a demand this year 20 per cent higher than last year.

Here is a Steel Heddle that

- will Not Chafe, Cut or Pull the Thread.
- the Thread will Not Cut It.
- will Last from Ten to Twenty Years on the Hardest Fabric.
- Requires Less Attention
- Creates Very Little Fly.
- Requires No Shelving for Changing Patterns.
- Adjusts Itself Automatically to Warp Thread.

Made in All Types and Sizes for the Weaving of All Fabrics — Let Us Send Samples.

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Celanese Yarn: Its Uses and Finishing Methods*

John P. Holmes, Southern Office, Celanese Corporation of America,
Charlotte, N. C.

IN the short time allotted me, dealing with a subject so broad as the uses and finishing methods of Celanese yarn, I shall only be able to touch on the high spots, or those things that I feel are most important or essential. On account of the increasing popularity and demand for Celanese yarn, I feel that a discussion of its uses and finishing methods will be of vital importance to all of us interested in the development and future of the textile industry.

Undoubtedly the majority of those present this afternoon are familiar with the properties and unique advantages of Celanese. However, for the benefit of the few who have not as yet come into close contact with it, I will briefly discuss the chemical and physical properties.

We will first consider briefly the place occupied by Celanese with relation to the group of artificial silks now available and known under the general name of Rayons. Although Celanese is a synthetic fiber, it is necessary that it be differentiated from the other synthetic fibers known as Rayons. Celanese differs from the so-called Rayons chemically in that it is an ester of Cellulose and Acetic Acid, whereas, the Rayons are regenerated Cellulose. Because of this difference in chemical construction, Celanese has a number of distinctive and valuable properties. Celanese, while a copyrighted trade name, has assumed the importance of the name of a distinct fiber as it is the most improved and important commercially of the Cellulose Acetate fibers now produced. It should not be regarded merely as a substitute for natural silk but rather a distinctive textile fiber of extraordinary usefulness.

These chemical differences of Celanese yarn cause it to have an entirely different affinity for dyestuff than other textile fibers. For this reason, various dyestuff firms have developed an entirely new group of colors for dyeing Celanese. This new group of colors, known as dispersion colors, are made from some of the same insoluble bases as the vat colors. Therefore, when dyed on Celanese these colors are as fast to light, washing and acids as the well known vat colors are on cotton.

In the process of manufacturing these dispersion colors the comparatively water insoluble anthraquinone or vat bases are passed through a colloidal mill and dissolved in Sulpho-Ricinoleic-Acid (from which the S. R. A. colors receive their name). These colors form a highly dispersed colloidal solution when added to the soapy or slightly alkaline dyebath. No other addition to the dyebath is necessary and the Celanese can be dyed directly by simply immersing at temperatures not over 180 degrees F.

Woven goods made entirely of Celanese are generally dyed either in a "jig" or "winch" type of dyeing machine. However, in some finishing plants the voiles are dyed in

open vats by fastening one selvage by the use of strings to poles that rest across the top of the vat, the other selvage hanging at the bottom of the vat. Thus the fabric is suspended in the dyebath and agitated by moving the poles backward and forward on top of the vat, very similar to the manner in which poles used in skein dyeing are moved backward and forward.

Fabrics made entirely of Celanese are also printed in designs by the use of engraved rolls and printing pastes made from vat colors, and also for some patterns dispersion colors are used. Considerable progress has been made during the past year in the discharge printing of Celanese fabrics. This has been achieved through the development of a series of colors suitable for dyeing Celanese that are dischargeable with different reagents.

Before dyeing, it is necessary to wet-out or desize the All-Celanese and Celanese-mixed fabrics. The sizing used for All-Celanese fabrics is easily removed by running the goods at 180 degrees F. in a bath containing neutral soap and sulphonated castor oil. In Celanese-mixed fabrics having rayon or cotton warps, it is necessary to desize with an animal or vegetable diastase in order to convert the insoluble starches into soluble sugars. However, if these warps are only lightly sized, the soap and sulphonated castor oil wetting-out bath as suggested for All-Celanese fabrics will be sufficient.

I have a number of All-Celanese and Celanese-mixed fabrics here for your inspection that will illustrate the most important Celanese constructions evolved within the past few years. These fabrics consist of voiles, ninon voiles, satins, twills, taffetas, failles, faille moires, velvets, two-tone reversible crepes, Celanese pin striped cotton suiting, etc. Here are also a number of tricot or warp knitted and circular knitted Celanese fabrics which are used extensively for underwear. The Celanese satins are sold in natural luster, de-lustered, relustered in designs, and embossed. The moired designs are actually fused into the fabric and, therefore, are absolutely permanent.

Celanese fabrics are becoming more and more popular on account of their numerous unique advantages. The unique advantages of Celanese fabrics can be briefly summed up as follows: Fabrics made entirely of Celanese will not shrink nor alter appearance after laundering; allow the passage of the sun's health-giving and curative ultra-violet rays; are non-conductors of heat and electricity; are not affected by body secretions; are very elastic; have a soft subtle luster; and the dyestuffs used for dyeing Celanese fabrics give colors that are unusually fast to light, washing and perspiration.

Celanese is also being used exten-

sively in fancy hosiery to obtain two and three color effects by cross-dyeing with other textile fibers. Since Celanese has a different affinity for dyestuffs than the other textile fibers, it is possible to dye real silk, wool, rayon or cotton with the various groups of dyestuffs in the presence of Celanese, leaving the Celanese white or cross-dyeing the Celanese any contrasting color desired. However, to leave the Celanese white, it is necessary to select from the various groups of dyestuffs the proper colors to be used on the other fibers. That is, if the direct colors are used for dyeing rayon and cotton, then select the pure direct colors that are not shaded with basic colors, as certain basic colors stain Celanese.

The fancy hosiery business has constantly been developing towards more elaborate designs, and for the purpose of obtaining cross-dyed effects in these designs, Celanese is being used extensively in conjunction with real silk, wool, rayon and cotton. For most of the higher priced styles of fancy hosiery and for certain operations in cheap styles, it is advantageous for a hosiery mill that is making multi-colored hose to obtain these effects by cross-dyeing rather than by using dyed yarns.

It would be impossible, in the short time allotted me, to discuss in detail the comparative cost of cross-dyed and ingrain hosiery, as there are so many conditions and factors that would enter into such a comparison. The following calculations are for determining the comparative average yarn costs in a certain cross-dyed half hose style and the same style half hose knitted from dyed yarns. The yarn costs used in these calculations are the average of several quotations submitted by several yarn agents. We will use for example a popular style of half hose, the boot of which is made by reverse plaiting 150 denier rayon over 100 denier rayon dyed a contrasting shade. The top, heel and toes are made of two-ply dyed mercerized cotton yarn. The cost of the individual yarns used in the boot of the ingrain style are:

150 denier dyed rayon on cones	
at (per lb.)	\$2.10
100 denier dyed rayon on cones	
at (per lb.)	2.95
In this construction 60 per cent of the total yarn in the boot is 150 denier rayon and 40 per cent is 100 denier rayon. Therefore, the average cost per pound of the dyed yarn used in the boot can be computed as follows:	
60% at \$2.10 per lb.	\$1.26
40% at 2.95 per lb.	1.18
Per lb.	\$2.44
In the same cross dyed style of half hose, the cost of the natural white yarns used in the boot is:	
150 denier rayon—Natural white	
on cones at (per lb.)	\$1.60

100 denier Celanese — Natural	
white on cones at (per lb.)	3.45
In this construction 60 per cent of the total yarn in the boot is 150 denier rayon and 40 per cent is 100 denier Celanese. Therefore, the average cost per pound of the yarn used in the boot can be computed as follows:	
60% at \$1.60 per lb.	\$.96
40% at 3.45 per lb.	1.38
Per lb.	\$2.34

However, in this style of half hose the mercerized cotton top, heel and toe are approximately 50 per cent of the total weight of the hose. It is necessary in the ingrain style to use dyed mercerized cotton yarns in the top heel and toe which will cost approximately 20 cents per pound more than the grey mercerized yarns used in the cross-dyed style. Therefore, since the mercerized top, heel and toe are 50 per cent of the total weight of the hose, it is necessary to add 10 cents per pound to the total average yarn cost of the ingrain hose. Then the total average cost per pound of the yarn used in the entire ingrain half hose style will be \$2.44 plus 10 cents, which gives \$2.54 per pound as compared with \$2.22 per pound for the total average yarn cost in the cross-dyed half hose style.

From the above calculations, we see that the average cost per pound of the entire cross-dyed half hose style is 3.2 cents per pound less than the average cost per pound of the ingrain half hose style. As this style of half hose weighs approximately 16 ounces per dozen pairs, you can readily see that there will be a saving of 3.2 cents per dozen pairs on yarn cost in the cross-dyed style. In addition to this the charge for knitting, looping and transferring is about 6 cents less per dozen pairs for goods made from white yarns, due to the fact that the looping, etc., of colored yarns are hard on the operator's eyes, hence they demand and get higher wages for handling these dyed yarns. The cost of dyeing the cross-dyed style is approximately 8 cents per dozen pairs. Therefore, it will cost approximately 30 cents per dozen pairs less to obtain the desired multi-colored effect in this style by cross-dyeing than by using dyed yarns.

Also by cross-dyeing instead of knitting from dyed yarns, you eliminate the necessity of carrying large stocks of dyed yarns. It is practically impossible when knitting from dyed yarns not to accumulate odd lots of dyed yarns that cannot be disposed of profitably. Recently a large hosiery manufacturer made the statement that in order to make spot deliveries, it was only necessary to carry approximately one-half as large yarn stocks and hosiery stocks if the hose were knitted from natural white yarns instead of dyed yarns, due to the fact that grey stocks could be quickly dyed in the exact color combinations desired. Thus if the hosiery stocks can be reduced approximately 50 per cent there will be a saving in capital and the interest charge necessary for

*Lecture at Textile School, N. C. State College.

carrying the additional yarn stocks, as well as the investment in buildings for storing these stocks.

It is not difficult to cross-dye Celanese with other fibers, it merely called for the development of special formulas and now that these are available this type of dyeing can be easily accomplished.

In closing I wish to say that if there are any questions that any one wishes to ask with reference to the constructions or finishing methods used for any of these fabrics or hosiery samples, I shall be glad to try to answer them.

Cotton the Most Important Fabric

"Cotton is the most important fibre known to man," states George A. Sloan, secretary of the Cotton-Textile Institute, Inc., in announcing the results of an analysis of the qualities of cotton which has just been completed under the Institute's direction. A report of this study will be published as a pamphlet entitled "Qualities of Cotton."

"In almost innumerable ways," says Mr. Sloan, "cotton is the fabric of fashion and industry."

"To Americans cotton is of immense economic interest because the United States supplies upwards of two-thirds the world's supply of cotton each year. The production of the raw material, the manufacture and distribution of its myriad products provide the basis on which great American industries are established. The influence of this single agricultural product directly and indirectly upon the growth and progress of the nation has been so extensive as to give it large historical value."

"We live in a world where cotton contributes something useful from our infancy until old age and death. Throughout life we wear cotton in some form. We live in environments made artistically agreeable by the use of cotton, we sleep in cotton, we travel in cotton, we are sheltered from sun and storm by cotton, we even eat the highly refined products of the once mysterious cotton seed."

In his summary Mr. Sloan points out that cotton has significant advantages by reason of its abundance, economy, the great diversity of its usefulness, its cleanliness and great artistic qualities. It makes durable, comfortable fabrics which respond to a variety of special treatments and may be preserved for long periods without impairment.

"The world output of cotton," the analysis continues, "is approximately five times that of wool; nine times that of flax; 60 times that of rayon; and 140 times that of silk. Abundance is therefore partly responsible for the great diversity of uses."

"There is probably no other fibre from which such a variety of products is made—cloth so fine as to be drawn through a finger ring, so attractive as to be suitable for apparel and decoration, so heavy as to be used for sails, tents, awnings, bagging, and tires, sufficiently protective to be used as a wall covering and serve as a base for plaster and paint, and strong enough for the covering of airplane wings."

"Where scrupulous cleanliness is required in such hygienic fabrics as bandages, dressings, uniforms, etc., cotton is the standard material."

"Cotton fabrics are not only inherently clean but are also easily laundered. Spots are easily removed and the fabric may be restored to its original freshness in a way which adds to its charm and comfort for wearing apparel."

"When first introduced it was a luxury, and the old Indian cottons have never been surpassed in quality or beauty by any other textile. Skilled craftsmen today are designing and producing fine cottons that have a distinct place as fabrics of fashion."

"Cotton possesses high tenacity and is responsive to treatment which greatly enhances its resistance to wear and strain. It is therefore useful where strength is an important factor."

"Fine cottons are so woven that the natural heat of the body may radiate freely, and the cooler temperatures outside may reach the body. These are sheer and light, and therefore comfortable and hygienic."

"It is also true that cotton can be woven into napped fabrics suitable for blankets and other warmth-giving articles."

"Either in its raw or finished state, cotton may be stored without serious harm from deterioration. It has a further advantage in that it is not subject to the ravages of moths."

"Cotton may also be changed chemically without being destroyed. It can be rendered fireproof. It can be made waterproof and form a base for waterproofing fabrics. It possesses an excellent affinity for dyes and coloring matter."

"By its lavish bounty nature has destined cotton for a large role in the everyday life and commerce of the world. In its centuries of usefulness it has influenced not only agriculture, industry, and commerce but also the arts, the social and political life of the world."

W. E. Lindsay

Spartanburg, S. C. — Wilton E. Lindsay, president and treasurer of the D. E. Converse Manufacturing Company, of Glendale, S. C., died at his Spartanburg home, after a short illness.

He was born in Charleston, S. C., in 1858 and lived in the lower part of the State until 1880, when he became connected with the D. E. Converse Company, textile manufacturers at Glendale, about nine miles southeast of Spartanburg. In 1882, he married Miss Ella Glass Tew and they made their home near the Glendale Mill until two years ago, when they moved to Glendalyn avenue on Converse Heights.

Mr. Lindsay had been connected with the company from 1880 until the time of his death. He had risen to the position of president and treasurer, and according to reports was probably the oldest executive employee among textile men of the South.

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CALENDER ROLLS

Since 1873, Perkins Calender Rolls have been built to meet exactly specific requirements. The marked individuality of Perkins Calender Rolls today has been developed through long years of close application to the problems of the industry.

Perkins Calender Rolls are uniform, resilient, resistant. They stand heat better and wear longer.

B. F. Perkins & Sons, Inc., Holyoke, Mass.

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TRADE MARK REG. U.S. PAT. OFF.

Calenders.—Drying Machines—Dyeing Machines—Finishing Machines for Silk—Jigs—Starch, Water and Tommy Dodd Mangles—Padders—Ranges—Scutchers—Singers—Squeezers—Tenters—Washers—Winders.

Calculating Individual Fabric Cost*

By I. L. Langley, Consolidated Textile Corporation, Lynchburg, Va.

I AM to discuss with you a subject of tremendous importance to the textile industry. During the past year there has been considerable interest awakened in textile cost accounting, the whole credit for which should go to the Cotton-Textile Institute. George W. Duncan, the Institute's cost engineer, is doing a great work along this line. In practically every group there has been held a meeting of cost accountants, or those men who will handle the cost work. At these meetings each item of expense is discussed, and a decision reached as to whether or not it should be included in costs. Nearly all groups now have special cost committees whose duty it is to study and assist the mills of the group in cost matters, working in conjunction with the cost engineer of the Institute. I dare say that most of the visitors here have attended one or more of these meetings.

It is a known fact that much of the uneconomic competition of recent years has been due, not to intent, but to lack of accurate cost knowledge on the part of individual mills. The only answer is education, and this is going to take some time. The Institute by making available to its members sound information on standardized cost practice, can aid mills immeasurably in the correction of this evil, without in the least limiting the freedom of action enjoyed by each mill. The cutting of price below a fair profit level is one of the greatest menaces to the industry, but without accurate costs any mill is apt to do it. It will take untiring effort to make effective the valuable foundation work which the Institute will do in this direction. Correcting the situation in our own mills will help, but we must do more if we are to receive any benefit. We must put our own house in order, then help our neighbor. The sooner we all know what it is costing us to produce, the better off we will be. Every man connected with the textile industry should recognize the fact that he is a part of the industry; that his individual success, or the success of the mill with which he is connected, depends upon the success of the industry of which he is a part, and that whatever he or his mill does affects not only his own business, but his industry. My sole reason for being here, gentlemen, is not because I received an invitation, but because I am anxious to do my part towards taking the red figures off of our profit and loss statements. If I succeed in giving you any information that you think is worthwhile, I will do so with the distinct understanding that you give it to others who need it.

I do not feel that it is necessary for me to advance any argument in favor of cost accounting, or cost engineering, for truly speaking, the work is only about ten per cent accounting. At practically every textile meeting held in 1927, I under-

stand that costs was the leading subject for discussion. Sales and operating executives alike realize the need of dependable cost figures.

With that said, we are ready to take up the subject of "Calculating Individual Fabric Costs," and the step is to decide on what is your normal production, for on this your costs are based; that is, your predetermined costs, or costs for selling purposes.

Normal Production.

Each mill must determine its own normal production. You might run 36-inch looms at 160 picks per minute while another mill runs at 156 picks. The fairest way I know is to take your records for as long a period of time as possible and determine what the mill has actually done. Normal is what you can reasonably expect your mill to do, and does not represent the minimum or the maximum capacity of the mill. Due allowance should be made for holidays, vacations, and in some cases for enforced shut-downs. It can readily be seen that if figures are based on maximum production, cost will be understated, for few mills are able to run at their maximum capacity for a very long period of time. And the mill that can is entitled to a premium for efficiency. The reverse is true when figures are based on minimum production. Costs will be obtained which are, in most cases, far higher than market, and will be very misleading to the sales department.

In order to demand and hold the confidence of the sales and mill executives costs must be dependable and lifelike. In my opinion costs based on normal production are the only figures that will do this. They are easily reconciled with the accounting records; and unless cost figures are reconciled they are of little value.

Normal Expenditures.

When a normal production has been determined, the next important step is to build up a normal budget of expenses covering the normal production as based on your past experience, it will not be a hard matter to determine expenses applicable to your production. You might ask why the normal production and normal expense budget. And it must be borne in mind, gentlemen, that the best use of cost figures is for sales purposes. They must therefore, of necessity, be predetermined, and based on past manufacturing experience. The goods on which you quote a price, based on costs, will probably be made one, two, or three months hence. Therefore, if the cost of any item of expense has changed, your actual expenses covering a past period have to be adjusted. Many of the expense items in the budget will be the same as actual, but there are many items that will have to be adjusted. The following items of expense will cov-

er at most mills, and I am going to ask that those who intend to follow me list these items, one under the other, on the left-hand side of a sheet of paper.

Labor.

My idea of labor, direct and indirect, is all wages paid from overseer down, including shop and yard. This does not include the office force or superintendent. It should cover the normal production on which costs are to be based.

Starch and Size.

In my opinion starch and size should be treated as a supply. Previous records will show the cost per pound of starch and size on goods produced. The budget figure can be determined by multiplying the pounds by the cost per pound. That is, if the price of starch and size has not changed, and the same size formula used in the mill.

Electric Power

Average consumption over a long period of time when the mill ran normally should be used, provided there has been no increase or decrease in power rates, in which case adjustment would have to be made.

Fuel.

An average of the net amount of coal consumed for manufacturing purposes during a period of time when the mill ran normally should be used, making the necessary adjustment for any change in price of coal.

Dyes and Chemicals

It is risky to base this item of expense on past experience. The cost will vary whenever the price of dyes or per cent used varies. It is therefore wise to confer with the dye-house overseer before arriving at a budget figure.

Oils and Lubricants.

The amount of oils and lubricants to be charged into the budget can be determined by references to past records. If all machinery is running this item is fairly constant.

Packing Material.

In arriving at a budget or normal figure for packing material I would determine from past records the cost of material used and goods produced. Then get the cost per pound and multiply same by the normal production on which costs are to be based.

Drayage.

Drayage charge applicable to a given period can be determined by reference to past records.

Village and Tenements.

Knowing the rate at which the houses are rented, there should be little difficulty in determining the income from village and tenements. This amount should be credited to village expenses, and the net difference, credit or debit, included in costs.

Supplies.

Supplies is an item which should be given much thought. Some mills

are too quick to capitalize work done on a machine which really does prolong its life. Card clothing, in my opinion, is a legitimate supply item, but I would not charge the entire cost of reclothing the cards into any one year.

Many mills do not have supply rooms, and supplies are taken directly to the department for which they are intended, regardless of whether or not they are to be used today or six months hence. Such a system as this encourages waste, and makes it impossible to obtain accurate costs. In my opinion all supplies should go to a supply room and be issued out on requisition as needed, accurate records being kept so that at the end of a period the supply clerk can prepare a report showing the character and quantity of supplies used by each department of the mill.

Insurance.

The amount of insurance chargeable to a given period can be determined by reference to current policies.

Taxes

All taxes, with the exception of income taxes, should be included in costs.

Salaries.

This item should include all money paid employees not included under labor, and all executives salaries.

Miscellaneous Mill Expenses.

Under this item are generally included such items as postage, express, office expense, telephone and telegraph. Past records will show the amount chargeable to a given period.

Depreciation.

An adequate amount for depreciation should always be charged into costs. Some argue that it is not a cost item. At least one used to hear it said. Anything that is used up in the production of an article, whether it be material or tool, should certainly be included in cost. Should a mill operate both day and night, additional depreciation should be charged on machinery and equipment for night run. Depreciation is allowed by the Government, and it is the consensus of opinion among recognized accountants that it is an item of cost.

Interest on Investment.

Working on the theory that all who have money invested in the business are entitled to at least bank rate of interest, it is considered good practice to include at least six per cent on invested capital in costs for sales purposes. However, it should be shown separate from other cost, because at times it might be found expedient to sell at cost without this interest. Then too it should be kept separate for convenience in reconciling with the general books. It must be remembered, however, that the best use of cost figures is for sales purposes, and when we submit cost figures to the sales department we should know that if sold at our figures there will be a small

*Address at Textile School of N. C. State College.

return to the stockholders. Investment should include:

- (1) Cost of plant to present owner, less reserve for depreciation.
- (2) Inventories of raw material.
- (3) Inventories of stock in process.
- (4) Inventories of finished goods.
- (5) Other working capital used in the business, such as cash, deferred items, etc.

If there is someone here who has other items of expense connected with his mill, they may be listed under these I have mentioned.

Our next step is to get these expenses properly distributed to the various departments of the mill, and I would suggest that the mill be divided into the following departments. Of course some mills have other divisions, but the ones I give will serve our purpose:

- (1) Opening through drawing.
- (2) Slubber, intermediate, and fine frame.
- (3) Warp spinning.
- (4) Filling spinning.
- (5) Spooling.
- (6) Warping.
- (7) Dyeing.
- (8) Slashing.
- (9) Drawing and tying.
- (10) Weaving.
- (11) Cloth room.
- (12) General.

tributed to the various departments on a power consumed basis.

(5) Dyes and chemicals should be charged to the dyeing department.

(6) Oils and lubricants should be charged to the various departments as per requisitions. Thus it is necessary for a record to be kept of the oils and lubricants issued to each department.

(7) Packing material should be charged directly to the cloth room where the goods are packed.

(8) Drayage can be charged to "General."

(9) Supplies should be charged to the various departments as per requisitions. Again we see the necessity of keeping accurate records in the supply room.

(11) In order to properly distribute insurance to the various departments it is necessary to separate the item into several heads, such as: Compensation and public liability, fire, group life, etc. Distribute on pay roll basis, distribute on building and machinery value basis, distribute on pay roll basis.

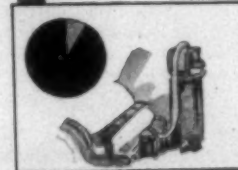
(1) Salaries should in my opinion, be charged to the various departments of the mill on a pay roll basis.

(13) Taxes can be distributed on building and machinery basis.

What are you doing about it? Waste



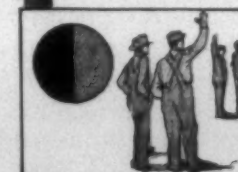
Saves 40% in handling waste.



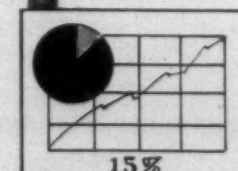
Shows 4% increase in card production.



Saves 14 to 21 minutes per card per day.



Saves 50% of card-operating labor.



15%

Shows 15% increase in quality of card production.

How would you like to try a waste handling system that saves you 1/10 cent on every pound of cotton that goes into your mill? That is what the triple-vacuum system has done for others. Actual savings show returns as high as 32% on the original investment.

What it does

1. Strips 4 cards at a time without shutting off your power.
2. Powerful vacuum picks up every wad of cotton waste and every speck of dirt that accumulates under and around every machine in every department of your mill.
3. Conveys all the waste directly to your waste house even though the distance be a 1,000 feet or more.
4. Delivers each grade of waste separately, so it can be stored neatly in its respective bins in your waste house.
5. Keeps your mill clean and pleasant for more contented workers and improved production.

For further particulars please mail the coupon to the office nearest your location.

Abington Textile Machinery Works

Fred H. White, General Manager

Abington, Mass.

50 Congress St.

Boston, Mass.

Independence Bldg.,

Charlotte, N. C.

You may send me further particulars about your Triple Vacuum System.

Name _____

Firm _____

Address _____

S. T. B.-4

COOK-GOLDSMITH TRIPLE VACUUM SYSTEM

Items of Expense	Opening through Drawing	Slubber Intermediate Fine	Warp Spinning	Filling Spinning	Spooling	Warping	Dyeing	Slashing	Dr. & Ty.	Weave	Cloth	General
(1) Labor	x	x	x	x	x	x	x	x	x	x	x	x
(2) Starch and Size	x	x	x	x	x	x	x	x	x	x	x	x
(3) Elec. power	x	x	x	x	x	x	x	x	x	x	x	x
(4) Fuel	x	x	x	x	x	x	x	x	x	x	x	x
(5) Dyes and chemicals	x	x	x	x	x	x	x	x	x	x	x	x
(6) Oils and lubricants	x	x	x	x	x	x	x	x	x	x	x	x
(7) Packing Material	x	x	x	x	x	x	x	x	x	x	x	x
(8) Drayage	x	x	x	x	x	x	x	x	x	x	x	x
(9) Village & Tenement	x	x	x	x	x	x	x	x	x	x	x	x
(10) Supplies	x	x	x	x	x	x	x	x	x	x	x	x
(11) Insurance	x	x	x	x	x	x	x	x	x	x	x	x
(12) Taxes	x	x	x	x	x	x	x	x	x	x	x	x
(13) Salaries	x	x	x	x	x	x	x	x	x	x	x	x
(14) Mill repairs	x	x	x	x	x	x	x	x	x	x	x	x
(15) Misc. Mill Exp.	x	x	x	x	x	x	x	x	x	x	x	x
(16) Depreciation	x	x	x	x	x	x	x	x	x	x	x	x
(17) Interest on Inv.	x	x	x	x	x	x	x	x	x	x	x	x
Total General	x	x	x	x	x	x	x	x	x	x	x	x

NOTE:—It is necessary to redistribute "General" to the various producing departments.

We now have the items of expense listed at the left and the departments of the mill listed at the top and across the page. We will now take each item of expense and check the departments to which it should be distributed.

(1) Labor should be distributed to every department of the mill. The pay roll will show the amount chargeable to each department.

(2) Starch and size I would charge directly to the slashing department.

(3) Electric power should be charged to those departments using electricity. It is necessary therefore to have a record of the power used by departments. The meter mechanic or engineer can generally supply this information. Percentages can be set up and the total amount of power consumed quickly distributed to the various departments.

(4) Fuel should be handled exactly as electric power; that is, dis-

(14) Some contend that mill repairs should be charged directly to the department having the repairs done, but I think differently. If this were done some one department would be out of line every period. Inasmuch as some department of the mill is being repaired all the time I believe it is better practice to charge mill repairs on a floor space basis. I do not believe that the relative order of costs, even by departments, should be disturbed by irregularities such as this. If it were possible to do all the repairing in one period, it would probably be done, but it is found best to disturb the work in the mill as little as possible.

(15) I would distribute miscellaneous expense on a payroll basis.

(16) Depreciation on buildings should be distributed on building value, and depreciation on machinery on machinery value. While it is best for each mill to determine its own rate of depreciation, care

(Continued on Page 32)

SOUTHERN TEXTILE BULLETIN

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DAVID CLARK
D. H. HILL, JR.
JUNIOUS M. SMITH

Managing Editor
Associate Editor
Business Manager

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Are They Stalling?

THE continual postponement of definite action by the promoters of the yarn merger has raised a question as to whether or not they are stalling.

We would like to see the yarn merger formed because it will relieve the textile industry of the South of a very weak spot and will eliminate a number of its weakest men.

The repeated delays in taking definite action seems to indicate that all is not well with their financial arrangements.

It is one thing to get options upon a number of mills and quite another thing to secure \$30,000,000 to \$70,000,000 with which to pay for them.

The promoters are men of comparatively small means and have never intimated that they personally would furnish the purchase money.

They of course expected to submit the appraisals and reports of earnings to banking syndicates and the bankers will only be interested in case they are sure that they can sell the stock to the public.

There is no evidence up to the present time that the financing plan can be completed and from month to month there are postponements that suggest the possibility but not the certainty that somebody is stalling.

In the meantime the delay and uncertainty is having a very bad influence upon the yarn mills.

As the options were given upon the basis of going concerns, yarn mills are selling small orders of yarns at almost any price in order to have enough business to keep running. One such mill sold 30-2 last week at 36 cents.

The mill managers, in anticipation of their retirement, have not much interest in obtaining profitable prices, are buying just as little supplies and repairs as possible and do not take their usual interest in the amount of production.

This situation has been going on to some extent since last August and is getting worse.

We would like to see the merger formed but if the promoters can not secure the purchase money, it is time for them to release the mills from their options and allow them to return to normal operations.

Possibly they have financial arrangements made, but up to the present time there has been absolutely no evidence of any ability to secure the amount necessary to purchase any large portion of the mills under option.

Texas and Oklahoma Acreage

WE are publishing in this issue additional reports, received by us, relative to the cotton acreage in various sections of the South. We are greatly surprised at the almost uniform reports of reduction of acreage in Texas and Oklahoma. Our reports come from towns located at regular intervals over those two States and from editors of small newspapers who could have interest in giving erroneous data. Almost without exception they report a sharp reduction in acreage where our report from Georgia and Alabama indicated increases.

As the cotton acreage of Texas and Oklahoma is from 40 to 45 per cent of that of the whole belt, these reports of a decrease in that section are of vital interest.

Mill Men Not Grafters

WE publish below a letter recently received from a large manufacturer and our reply thereto. We do not feel that it is necessary to add any further comment to our answer to the letter.

The Letter

The letter read as follows:

"We have recently heard a question raised in regard to selling materials to Southern mills. This question relates to the matter of whether or not it is common practice in the textile industry either in the South or North or both for the trade manufacturing such materials as dyes, oils, soaps, alkalies and various chemicals of that nature, to pay anything in the nature of a gratuity to the practical men in the mills. We have just recently launched a rather aggressive sales campaign in the textile industry on one of our products. In offering it however, various men have told us before we even put this material across, it would be necessary for us to be rather liberal in our treatment of the practical men in the mills.

"Now if this practice is indulged in commonly throughout the textile industry and the manager, superintendents and proprietors of the mills are acquainted with the practice and acquiesce with it, then I can see no damage or no harm to us in our adopting it also.

"On the other hand if gratuities are given clandestinely then in the very nature of things, our company is not interested in the practice and would rather withdraw from the textile field completely than to have to work up a business on this basis.

"If you have made an investigation along this line, we should greatly appreciate any conclusions you have drawn."

The Answer

In answer to the above letter, David Clark, editor, sent the following reply:

"I wish to apologize for delay in answering your letter of recent date, but I have been out of town most of the period and also, wished to make some investigation relative to any possibility of truth in the assertions that have been made to you.

"It is certainly not made a common practice in the textile industry of the South for the trade manufacturing such products as you mention to pay gratuity to the men in the mills.

"In fact, it is my observation and information that cases of payment of gratuity, which is a polite word for graft, are very rare. Of course, there are some graft cases connected with the textile industry of the South, but I do not think there are many, and it has been my experience that where a salesman insists upon payment of graft, it is usually for one or two things—either to overcome his inefficiency as a salesman, or to pocket the allowance for graft himself, making the firm believe he is giving it to the men in the mills.

"If you, or any other firm, can give me proof of mill men that are accepting graft or of salesmen who are giving graft, we will not hesitate to publish the facts, including the names.

"The textile industry of the South has an unusually fine class of men as superintendents and overseers and we can state positively that the giving of gratuity, or graft, is not a common practice, and I would take pleasure in aiding in driving out of the industry any men who made a practice of demanding and accepting graft."

A New Fad

IN a recent newspaper article we notice the following:

House robes have become an almost necessary part of a man's wardrobe. They used to be unusual—like a monocle or a girl who smoked. But today in hotel lobbies you often see men in robes who have come down for stamps, newspapers or to greet a friend, and I am told many men who are not called upon much to meet people wear them in their offices. A furnisher on Madison avenue says he used to sell about 20 robes a year. Now the number reaches several thousands.

As the house robes or lounging coats are usually made with cotton warps and rayon filling, we see in this fad the possibility for an increase in the use of cotton warps and the possibility of many looms being occupied on these goods.

Textile Week At State College

THE Textile School of North Carolina State College observed its annual Textile Institute last week. The week brought together the textile students and a considerable number of mill men. The program which ran through three days, was featured by a number of lectures by well known textile authorities from the mills and the manufacturers serving the textile industry.

Another interesting feature of the occasion was the display of products turned out by the students in the textile classes. These covered a wide variety of yarns, goods and knitted fabrics, and also some splendid examples of dyeing.

A number of lectures that were on the program are published in this issue. Without exception they are well worth reading by all mill men and give some very excellent ideas on a variety of textile subjects.

One of the problems of all textile schools is to build up a closer contact with the mills for it is only through this contact that the mills can appreciate the work that the schools are doing. At the same time, a closer acquaintance between the mills and the schools makes it easier and simpler for the latter to carry on their work in a way that will result in practical benefit to the industry.

We believe that the Textile Institute idea as practiced at State College is an excellent idea and that it serves admirably to show the nature of the service the school seeks to render.



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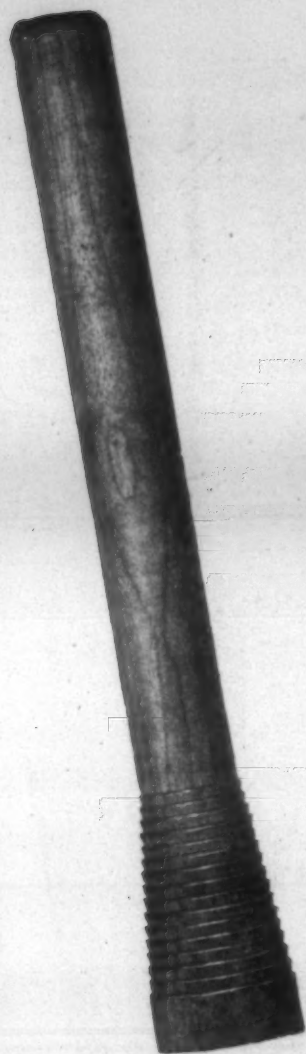
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R. H. Macy & Co. has installed a
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simultaneously up to 60 samples of the same
which will be operated on the same
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Report
last month.

Cotton is one of nineteen materials needed to make a telephone. The fibre has qualities which play a large part in keeping the voice currents on the pathways provided for them.

It is valuable as an insulator. It is flexible. It stands usage. Such a combination of properties gives cotton an important place in the covering of telephone and switchboard cords.

This cotton stands the hard test of day by day service because it was carefully selected for the job. Just one more evidence of the high standard which Western Electric sets for every stage of telephone manufacture.

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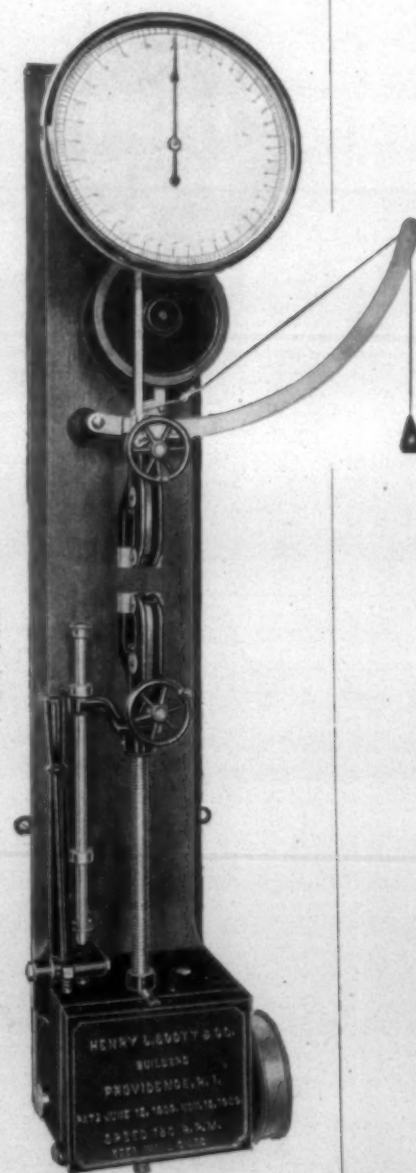
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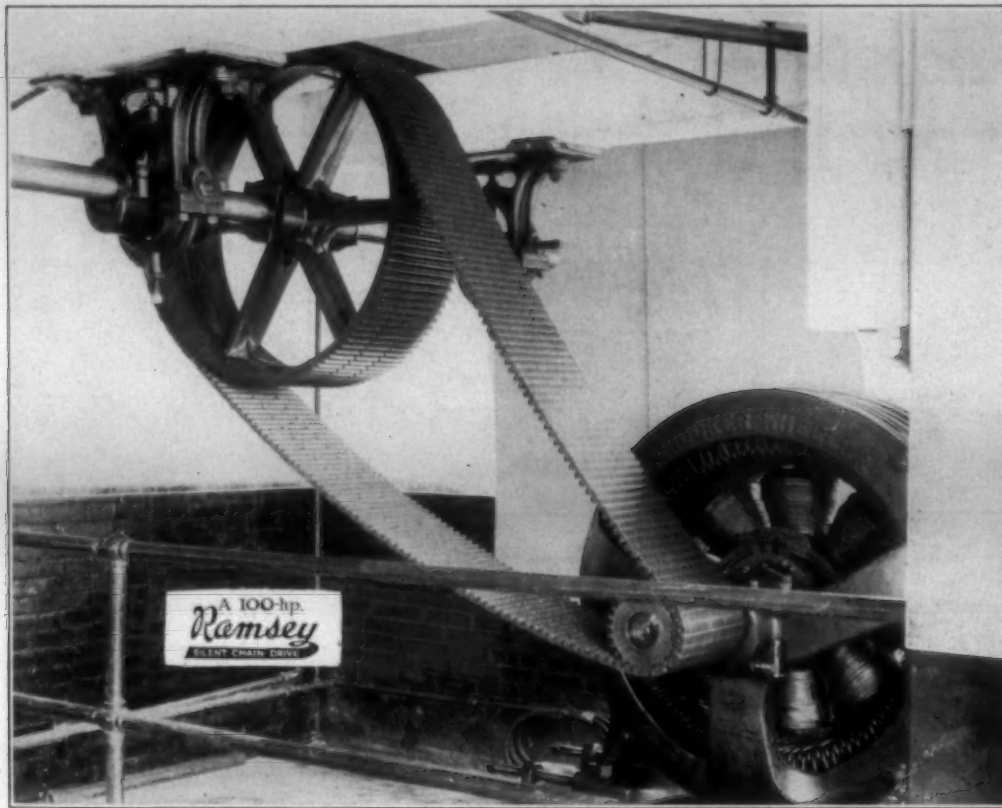
At the right is close-up view of dial and mechanism of Scott Automatic Cloth Tester, belt drive from small motor. A double range machine combining a 150 pound and a 300 pound maximum yarn tester in one.

No special wiring is required and current may be used from any convenient light socket. The automatic action of machine reduces time to less than one minute per test.



Adequate testing equipment is far less expensive than guess work. The sight and feel test is no more infallible than human judgment is infallible. A Scott Testing Machine has no favorites, no prejudices and no "off days"—it is mechanically accurate.

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Canadian Factory—The Hamilton Gear and Machine Company, Toronto, Canada.

Personal News

David Tousignant has resigned as superintendent of the Aiken Mills, Bath, S. C.

John F. Long has resigned as superintendent of the Ninety-Six Cotton Mills, Ninety-Six, S. C.

A. J. Poe has resigned as overseer weaving at the Mayfair Mills, Burlington, N. C.

G. A. Barnes, of Winder, Ga., is now with the Lawrenceville Mills, Lawrenceville, Ga.

J. J. Phillips, of Gibsonville, N. C., has accepted a position with one of the mills at Spray, N. C.

Luther C. Leagan, from Winnsboro, S. C., is now night overseer of No. 3 carding at the Mooresville Cotton Mills, Mooresville, N. C.

C. S. Ward has been promoted to second hand in No. 1 carding at the Graniteville Manufacturing Company, Graniteville, S. C.

S. M. McKeown has been promoted to second hand in No. 3 carding at the Graniteville Manufacturing Company, Graniteville, S. C.

Arthur E. Tousignant has been promoted from assistant superintendent to superintendent of the Aiken Mills, Bath, S. C.

R. T. Fagan has resigned his position with the Swift Spinning Mills, Columbus, Ga., and accepted a position with the Muscogee Manufacturing Company, of the same place.

Leonard Aitken, agent of the Lincoln Mills, of Alabama, Huntsville, Ala., has been elected executive vice-president.

G. A. Lay has resigned as overseer of jack spinning at the Draper-American Mills, Draper, N. C., to become overseer of carding and spinning at the Clyde Mills No. 2, Newton, N. C.

J. G. McNeil, who for the past three years has been superintendent of the Greenwood Cotton Mills, Greenwood, S. C., has been transferred to a similar position at the Ninety-Six Cotton Mills, which is under the same management.

The following mill officials have been elected to the board of directors of the Piedmont and Northern Railway: J. T. Woodside, of Greenville, S. C.; A. F. McKissick, of Greenville, S. C.; W. E. Beattie, of Greenville, S. C.; C. A. Cannon, of Kennesaw, N. C.; B. B. Gossett, Charlotte, N. C.; J. P. Gossett, Williamston, S. C.; B. E. Geer, Greenville, S. C.; E. F. Green, Boston, Mass.; B. B. Hutchison, Mount Holly, N. C.; W. E. Lee, Charlotte, N. C.; J. E. Separk, Gastonia, N. C.; E. A. Smyth, Flat Rock, N. C.; John M. Law, Spartanburg, S. C.; W. S. Montgomery, Spartanburg, S. C., and V. M. Montgomery, Spartanburg, S. C.

W. H. Guinn has resigned his position with the Carolina Textile Corp., Dillon, S. C., and is now located at St. Paul, N. C.

C. W. Wilbanks has resigned his position with the Cliffside Mills, Cliffside, N. C., to become overseer of spinning, spooling and warping at the Henerietta Mills, Henrietta, N. C.

C. H. Keifer, formerly manager of the Paducah Hosiery Mills, Paducah, Ky., is now with the Washington Hosiery Mills, Nashville, Tenn., as assistant to the general manager.

W. J. Jennings has resigned as superintendent of the Carolina plant and carder and spinner at the Oneida plant of the L. Banks Holt Manufacturing Company, Graham, N. C., to become overseer of carding and spinning at the Minneola Manufacturing Company, Gibsonville, S. C.

Kimball Leaves Parks-Cramer Co.

Irving D. Kimball, who for the past 7 years has been Southern manager for the Parks-Cramer Co., Charlotte, has resigned that position to become district manager for the Investors Council of America. He has many friends in the textile industry who regret to see him leave this field.

H. M. Parks, president of the Parks-Cramer Co., will come to Charlotte this month to take charge of the Southern office. It is understood that he will divide his time between the Charlotte and Fitchburg offices of the company.

Obituary

Louis L. Arnold

Atlanta, Ga.—Louis L. Arnold, for 17 years editor of Cotton, died Monday morning at his home here. He had been in failing health for some months. Funeral services were held at West Point, Ga.

Mr. Arnold was widely known in the textile industry and recognized as an editor of unusual ability. He had a large number of friends among Southern mill men who will learn with much regret of his passing.

Mr. Arnold was born in East Greenwich, Conn., coming to Georgia 30 years ago, to begin work with the Lanett Bleaching and Dyeing Works, at West Point. After being associated with this company for nine years he removed to Clearwater, S. C., where he was affiliated with the Clearwater bleacheries. After a short residence in the East, Mr. Arnold returned to Atlanta in 1910 to establish Cotton.

He is survived by his wife and two daughters, Miss Carrie L. Arnold, of Atlanta, and Miss Marguerite H. Arnold, of Birmingham, Ala.

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MILL NEWS ITEMS OF INTEREST

Anniston, Ala. — It is understood that the Cadet Knitting Mills, which is to enlarge its seamless hosiery plant here, later plans to erect a mill for making full fashioned hosiery.

Gaffney, S. C. — The Gaffney Manufacturing Company is having lay-out plans prepared by Lockwood, Greene & Co., engineers for the installation of 860 looms in the basement of the present mill building.

Gaffney, S. C. — The shipping room of the Derry Damask Mills, Gaffney, was demolished by a tornado that hit the Piedmont section late last week. No estimates of the damage or insurance were available. The shipping room was in a brick annex of the mills.

Birmingham, Ala. — It is understood that building contracts for the ten mills to be erected in 10 Alabama towns by the Alabama Mills Company, have been let to the Cook-Batson Company, of West Point, Ga. Robert & Co., Atlanta, are the engineers.

Stanley, N. C. — The building formerly occupied by the Lola Gingham Mill has been leased by Katterman and Mitchell, of Paterson, N. J., silk manufacturers. The equipment at Paterson is to be moved here within a short time.

Greenville, S. C. — Machinery in the Southern Pyle Fabric Company, one of the city's newest textile plants, is now in operation. Samples are being run from the looms. The new plant is located on the old Riverside Mill site, and was built at a cost of between \$150,000 and \$200,000.

Asheboro, N. C. — The building contract for the Bossoning Hosiery Mills to be let within a short time. The company, with headquarters in New York, is to erect a mill here and equip it with machinery from its New York plant. Lockwood, Greene & Co., Charlotte, are the engineers.

Fort Mill, S. C. — Officials of the Fort Mill Manufacturing Company have announced a resumption of full time schedules in the two cotton mills here after a period of short time operation. It is understood from the announcement that Mill No. 1 will have a day schedule, and Mill No. 2 a day and night schedule.

Richmond, Va. — Following receipt of a telegram from the M. E. Benz Co., Inc., of New York, of which he is a member, Edwin Benz, manager of the Strasburg Silk Mill, made the announcement that work at the Strasburg mill will be almost immediately abandoned and its equipment moved to the company's plant at Fayetteville, N. C. This decision was wholly unexpected.



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and Detail Plans
Supervision of Landscape and
Engineering Construction

Largest Landscape Organization in the South

Chatworth, Ga. — Business men here are making an effort to have a Philadelphia textile mill move its plant to this place.

Whitmire, S. C. — The Carolina Construction Company of Greenville, was awarded the contract to build 25 employees' houses at the Aragon-Baldwin Mills, Whitmire. The cost of the project will be slightly more than \$40,000 and work will begin in the near future.

Tarboro, N. C. — The building contract for an additional unit at the Hart Cotton Mills has been let to the Brown-Harry Construction Company, Gastonia, N. C. The amount of new equipment to be installed has not been announced. Lockwood, Greene & Co., Charlotte, are the engineers.

Wadesboro, N. C. — A new silk and rayon weaving mill, known as the Jepson Art Weaving Company, has been organized here, according to J. T. Wheldon, secretary of the Chamber of Commerce. The company is to be capitalized at \$200,000, all of which is said to be subscribed by local men. Construction of a modern mill building, 90x225 feet is to be started within a short time, Mr. Wheldon said. The names of the organizers have not yet been announced.

Greensboro, N. C. — The Juvenile Hosiery Mills, Inc., which was recently transferred here from Philadelphia, and which will begin operations on April 1, has secured a North Carolina charter. The concern will manufacture hosiery and other knit goods.

Authorized capital stock is \$250,000 with present shares held by Louis Baach, Max Leiberman and Jeanette Baach, Greensboro. A new plant, costing \$20,000, is now ready for operation.

Dyersburg, Tenn. — Negotiations that began several months ago to locate a combination of five textile plants at Dyersburg were completed here when a contract was signed by representatives of the Northern and Eastern plants and officials of Dyersburg Industrial Association.

Engineers of the five concerns were here Monday of this week to begin plans for the plant buildings which will be started in the immediate future with the expectation of having all the factory units complete and in operation this fall. The plant building will be erected at a cost of \$400,000.

The merger, effected by the Northern and Eastern manufacturers for the purpose of moving South includes two spinning plants in the East, two knitting plants in the North and one knitting plant in the East.

Approximately 1,200 people will be

employed in the factory. Arrangements have been made to construct 100 residences in the industrial section of the city.

The five mills involved in the deal are said to be among the oldest and most prominent in the textile realm with important established trade.

Among the products of the Dyersburg factory will be those same items manufactured by the individual mills before the consolidation, such as women's and children's underwear, bathing suits, sweaters, hugging, tubing cloth and other items.

Greenville, S. C.—Construction of the Piedmont Print Works, near Taylors, has already reached the first floor of the building, according to information given out by Potter & Shackelford, contractors. Work is going forward without any interruption, being favored by the ideal weather conditions of the last few weeks. Indications are that the plant, which, together with the village, will represent an expenditure of \$1,000,000, will be ready for operation some time in the early fall. The contract to build 60 employees' houses was awarded to the Townsend Lumber Co., of Anderson, and they expect to have the houses ready before the mill building is finished.

Orange, Va.—W. M. Black of William A. Black & Sons, of Baltimore, Md., returned from New England, where he purchased machinery for the Orange Textile Mills, Inc., which has just been granted a charter for the manufacture of draperies, damasks and tapestries.

Mr. Black has had plans drawn by a Northern architect which provides a one-story brick building 50 by 140 feet, with a wing addition of 15 by 50 feet.

The Orange Textile Mills, Inc., was organized recently, and stock subscribed within 48 hours. The company is capitalized at \$50,000, and will employ approximately 50 operatives.

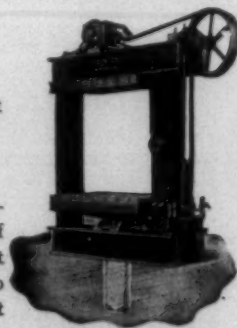
This project was secured for Orange through the activities of the Orange County Chamber of Commerce.

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Great Improvements in Mill Communities

Chapel Hill, N. C.—Living conditions in mill villages in the South have so improved during the last 40 years that these villages now constitute "a great socializing and educational factor in our civilization," declared Dr. Marjorie Potwine, community director of the Saxon and Chesnee Mills, of Spartanburg, S. C., in an address here under the auspices of the School of Commerce of the University of North Carolina.

Dr. Potwine has been engaged in welfare work in mill villages for years, and she says that the more she studies the mill villages the more she is impressed with the happiness and contentment of the people who live in them. She admits that she is "working in the midst of a situation that is often very much misunderstood."

Dr. Potwine said she had reached the conclusion that the labor bosses had done the mill workers more harm than good. "There is no greater exploiter of American labor today than in the union organizer or the labor boss, grazing on his subordinate constituency behind the mask of benefactor, holding long drawn out conferences in palatial hotels, riding in limousines, the like of which he says capital should not enjoy and spending more for creature comfort in a day than a workman does in a week," she declared. "Some of these people are my personal acquaintances and I know whereof I speak."

In most mill villages in the South today, Dr. Potwine said, the workers are getting what they want through petitions, "for the cotton manufacturers have a keen sense of social responsibility." During the last 40 years the development of this social policy of beneficence has led a retarded and impoverished people all the way from a staggering origin into the ever-increasing richness of self-expression. As I talk with the mill people I find that they feel this great social change in terms of self-improvement, not exploitation. I sincerely believe that if we leave the industrial workers of the South to work out their own problems of adjustment the industrial revolution here will take on characteristic distinct and unique from any other industrial evolution yet known."



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The Cost of Living North and South

Henry Nicholas Snow, in Spartanburg Herald.)

PAUL BLANSHARD, in a recent dissertation entitled "Labor in Southern Cotton Mills," makes the amazing statement that the cost of living is higher in the South than in the North. He specifies particularly the cost of living of mill workers in Pelzer, S. C., and Fall River, Mass., but his assertion is in fact a sweeping opinion that it costs more to live in the South.

Mr. Blanshard's booklet, published by the New Republic, purports to be an accurate and comprehensive study of living conditions among the mill workers of the North and South and it quotes some rather antiquated research figures on the subject. A quick reading of "Labor in Southern Cotton Mills" leaves one with the impression that it is rather a one-sided attack on the Southern mill village, and that the author is not any too careful in using arguments to help his case.

Certainly it seems like a strange piece of figuring that will show a higher living cost in the South. How anyone who has lived both in the North and South and kept his eyes even halfway open can arrive at such a conclusion is indeed a riddle. For my own part I have found the South a place where general living costs among all classes of people are so much lower that any suggestion to the contrary appears ridiculous.

In making his comparison of living costs which show such an astounding result Mr. Blanshard says that food, clothing, fuel, heat and light are so much more expensive in the Southern States that the admitted saving on shelter and sundries is wiped out and the total cost of living in Pelzer, S. C., for instance, is appreciably higher than in Fall River, Mass. According to these statistics, the cost of food alone is something like 23 per cent higher in South Carolina, while clothing amounts to 14 per cent more, and fuel, heat and light together exceed Massachusetts charges for those commodities by approximately 10 per cent.

Now Mr. Blanshard admits that

housing in the North is more than twice as high as in the South and that sundries cost a few dollars more, but what about the other percentages which he places to the disadvantage of the South? I believe that everyone who has lived both in Massachusetts and South Carolina will subscribe to the unqualified statement that they are grossly incorrect and entirely misleading.

Personal experience and many inquiries lead me to conclusions quite at variance with those of Mr. Blanshard. They may be taken for what they are worth. Take, first of all, the matter of food purchased by everyone through the usual channels, and begin with meat, a substantial item on the universal menu. In South Carolina beef can be bought at one-half to two-thirds the price paid generally throughout the Northern States. Ham and other hog products are also lower in the South, roughly one-third less. First-quality cured ham now selling for 40 cents in Spartanburg costs the purchaser about 60 cents in Yonkers, New York. Fish and sea food in the Carolinas, as nearly as I have been

able to judge, run slightly lower than in the very fishing center of Boston. Eggs and poultry products, exclusive of resorts, are obtainable at a third less in the South. Staples and canned goods about the same North and South, varying with the different articles. Fruit the same, vegetables a shade lower with several much cheaper varieties on the market. Milk, due to the newness of the industry as such in South Carolina, runs about two cents or so more a quart, though buttermilk is much less. The total cost of food in South Carolina can be set pretty accurately at 25 per cent to 30 per cent lower than in Massachusetts, specifying Pelzer and Fall River or any other non-resort communities.

Turning to clothing, which Mr. Blanshard insists is so costly in the South, one is tempted quite strongly to laugh. I have yet to discover a single article of clothing, equal in quality, that costs more in the Carolinas. If one shops carefully clothing in South Carolina could be considerably less in the main. Cotton materials, of course, are so much cheaper as to admit of no comparison.

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son. Lower store rentals are an item that cannot help but reflect in many lower retail prices. Add to this the fact that heavy woolen clothing and "winter clothes" are so much less a necessity, and the absurdity of figures purporting to show high clothing costs in the South is amply apparent.

Further dissecting Mr. Blanshard's statement we find that fuel, heat, and light in Pelzer, and by implication the South generally, actually costs more than in the North. Light, indeed, seems a few cents a month more expensive in the smaller Southern cities, though electric lighting is often furnished at no cost to mill workers, but fuel and heat in the South are certainly much cheaper. Soft coal as burned in the South is priced to the user at about half the cost of hard coal, burned everywhere of necessity in the North. And the warmer climate of the South does make a difference, too. An estimate of one ton of soft coal consumed in South Carolina to every two and one-half of anthracite in Massachusetts would not be far wrong, referring to coal used for fuel and heat per family.

The truth of any comparison of the cost of living in the South and North is that every scale of living would appear to be lower in the South, and a lot lower, and that a standard family of lower wage income can live a much pleasanter and healthier life beside. It is a far picture from the Southern mill worker in his separate dwelling to

the Fall River, Brocton, or other Northern factory hand, existing in slums and tenements like a bee in a hive of varying degrees of cleanliness and light, and paying more for that doubtful privilege. And as Mr. Blanshard himself says, "The Southern mill worker receives from the owner a number of community advantages which assist him in the enjoyment as compared with the Northern workers."

It would be possible to run on ad infinitum in listing the various expenses that one meets in the course of a day, week, or month in the North and South and show that nearly all are lower in the South, some are about the same, and a few, very, very few are higher. But perhaps the comparative expense of running a motor car in New York State and in South Carolina will illustrate. Garage rental in New York 10 to 20 dollars a month, and you can't leave your car in the open at night either. It may not be waiting for you in the morning. License of car about one dollar more. Driver's license required of everyone, one dollar. Gasoline in New York is lower, but oil, tires, accessories are the same, and that biggest of all items, repairs, totals unbelievably less in South Carolina. A 4 to 5 dollar valve and carbon job in Spartanburg would cost in the neighborhood of 10 dollars in Albany or Buffalo, with all other types of repairs running in about the same proportion. The net result is that many persons who cannot afford the use of a motor

car in New York State could with the same income, enjoy the added health and pleasure of an automobile in South Carolina.

Covington Invents Roving Dyeing Machine

I. B. Covington, vice-president and superintendent of the Wade Manufacturing Company, Wadesboro, N. C., has invented an attachment for dyeing roving. He furnishes the following brief description of his invention:

"This is an attachment to be used on any type of dyeing machine that dyes yarn. The attachment is designed to dye all types of roving from a seven-inch bobbin to a twelve-inch bobbin but it has been proven more satisfactory to dye the finished roving, or in other words, to dye the roving from the last process in card room which will give more even shades and will at the same time decrease expense of dyeing and eliminate a great amount of waste, due to the fact that there will be no back winding as in dyeing yarn."

Tribute to W. C. Cobb

W. C. Cobb, who recently retired as superintendent of the Ware Shoals Manufacturing Company, Ware Shoals, S. C., after a long period of distinguished service, was paid the following tribute by Ben D. Reigel, president of the company:

"In all my years as a manufactur-

er and a business man, I have never had the privilege of knowing a more loyal or more consecrated man than Mr. Cobb. I hope that in his retirement, as in his service, he meets with wholesome and heart-felt veneration from the people of Ware Shoals."

Knitting Mill Sold Up to August

Utica Knitting Co. states that production of cotton ribbed underwear at its Southern mill in Anniston, Ala., has been sold up to August 1. It is estimated that this involves about one-half of their 1928 output, the firm states.

Inasmuch as this is the first year Utica Knitting Co. has handled a Southern mill, the company feels that the results thus far are very gratifying. Another important fact which they point out is that the distribution of these garments has been spread over a wide territory throughout the country, in an effort to acquaint the trade with the type of merchandise now being made in this mill.

Mt. Vernon-Woodbury Profits.

Baltimore, Md.—Net income of \$608,639 reported by the Mount Vernon-Woodberry Mills, Inc., for 1927, compared with \$487,510 for 1926, and \$623,402 for 1925. After payment of 5 per cent dividend on the preferred stock, calling for \$363,497, the sum of \$245,134 was carried to surplus.

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..... 192.....

Name of Mill.....

Town.....

..... Spinning Spindle Looms

..... Superintendent

..... Carder

..... Spinner

..... Weaver

..... Cloth Room

..... Dyer

..... Master Mechanic

Recent changes.....

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Calculating Individual Fabric Cost

(Continued from Page 25)

should be taken that the amount charged is sufficient.

(17) Interest on investment should be distributed to the departments of the mill as per capital invested therein. This like many other items must be studied by each individual mill and distribution made as conditions indicate.

We now have listed and distributed all items of expenses. As I have said before, some mill will have other departments of the mill. If so, just add them to what have been given.

The next step is to total each department. Inasmuch as the department "General" is not a producing department, the items of expense distributed to this department must be redistributed to the producing departments. This I would do on a payroll percentage basis. No basis would be absolutely correct, and in my opinion the payroll is the fairest. Now get another total and we have the total amount charged to each department.

Calculating Departmental Costs.

Before departmental costs can be calculated it is necessary to balance the mill; that is, basing your figures on the normal production of the weave room, determine the quantity of yarn and roving required by numbers and the spindles required to produce same. It will generally be found that the mill is about balanced; that is, all machinery in every department has to run at full capacity to keep all loom running. The superintendent sees after this, and most of them know that it is hard to make a profit with idle machinery in the mill. I would first

total pounds of yarn required into total dollars charged to this department. By dividing by the pounds of yarn, all waste is taken care of. Gentlemen, I might add here that in making these calculations, you must know exactly what you are doing. In this case for instance, you must know that the labor charged to the operations from opener through drawing covers the machinery running sufficiently to produce the required roving and no more.

In the next department, "Slubber, intermediate and fine frame" it is necessary to determine the labor cost of each roving number produced. There are so many different methods of paying labor, that we will not go into either here. I might say, however, that I would first figure the piece labor per pound by number roving, then I would charge the balance of the labor and expense on a spindle basis. In this department it is necessary to have a draft schedule so that the total cost of each speeder roving number may be determined. The cost of speeder roving should be increased by the amount of roving wasted in the spinning room.

In the spinning room I would first figure the piece labor per pound by yarn number; then charge the balance of the labor and expense on a spindle basis.

The same method may be used in the spooler room.

In the warping department the cost is small, but if possible get the cost per pound by yarn numbers.

When you have reached this point, the next step is to summarize and determine the cost per pound of each yarn number, both warp and filling. To do this you must know the speeder roving number that went into each yarn number. The following form will illustrate:

Yarn Summary

	20's Warp	30's Warp	24's Fill	30's Fill
Opener thru drawing (cost per lb.)	x	x	x	x
Slubber, Inter. and Speeder	x	x	x	x
Total card room cost per lb.	x	x	x	x
Spinning room cost per lb.	x	x	x	x
Spooling cost per lb.	x	x	x	x
Warping cost per lb.	x	x	x	x
Total yarn cost per pound	x	x	x	x

determine the amount of yarn, warp and filling, required of each number. Then figure the slubber, intermediate and speeder roving required by number. The superintendent should supply you with a draft schedule, or if you have access to the carding and spinning room reports you can work this out for yourself. Let me state now that the cost figures produced can be no more accurate than the production records upon which they are based. The cost department should keep a complete set of production records, and these should be carefully checked after they come from the mill. You should not rely on someone outside to do the checking.

Our first department is "Opening through Drawing." This division was made under the assumption that there was only one weight stock delivered through the drawing frames. If this is the case, I would divide the

After the yarn summary has been made, the next step is to figure the "Slashing department" cost. Knowing the ends in the warp and the speed of the slasher, it is not difficult to determine the cost per cut or pound for each fabric.

In the "Dyeing department" where the raw stock is dyed, or the yarn is beam or chain dyed, I would determine the cost per pound.

In the weaving department I would first determine the piece weaving price per cut. The balance of the labor and other expenses charged to the weaving department can be charged to the looms on one of several bases. I prefer the reed space basis.

The latest department is the cloth room, and here I would determine the cost per yard or cut.

We are now ready to figure individual fabric costs, and I would suggest the following form:

Fabric Estimate Sheet

Date		Division		Fabric		x	
Kind of loom		Warp No.		Filling No.			
Width of loom		Per cent warp		Per cent filling			
Picks per minute		100% Prod. yards		1 week			
Looms per weaver		Prod. yards		1 week			
Price per cut		Prod. Pounds		1 week			
Normal wage per week		Prod. cuts		1 week			
Spindles per loom		Number harness					
Per cent second and shorts		Ends per dent					
Running quality		Weight cloth from loom					
Width in reed		Weight cloth finished					
Width in body warp		Length cuts slashed					
Ends in selvage		Length cuts woven					
Per cent on warp		Pounds per cut					
Per cent contraction filling							
(1)	(2)	(3)	(4)				
Yarn No.	Lbs.	Yarn cost	Total Cost	Per Cut			
Total	Per	Per	36"	40"	46"	54"	59"
Per cent weave room waste	Cut	Pound	Loom	Loom	Loom	Loom	Loom
Total yarn cost							
(A) Dyeing							

At the top of the form is listed the production and loom data necessary. In column one is shown the yarn numbers used in the fabric. Column two shows the pounds of warp and filling in one cut. Column three shows the cost per pound of each number yarn. This figure comes from your yarn summary. Column four shows the extensions. Line A shows the dyeing cost. Line B shows the slashing cost. The slashing cost per pound multiplied by the pounds of warp yarn is extended to column four. Line C shows the price weaving per cut. Line D shows the weave room charge per loom per week. At the top of the form is shown the cuts produced per week. Divide loom charge per week by cuts per week to get cost per cut. Line E shows the cloth room cost per cut. Line F is the total of the extensions. Divide this total by the pounds per cut, shown at the top of form, and we get the cost per pound, or divide by the yards per cut, and we get the cost per yard; that is, the cost over cotton.

Cost of Cotton in Cloth.

In calculating costs for selling purposes, and as stated before, this is the best use of costs, you should always figure on replacement cotton. To do this ascertain the month on which the mill is basing its purchases; that is, the "spot month" and to this add the basis, so much off or on as the case may be, and if your mill is making ten per cent waste divide by ninety. Do not try to add ten per cent.

Cost Department Records.

The cost department should keep complete records pertaining to production, waste and costs. Production records should show looms running on each fabric, per cent efficiency, yards, pounds, per cent seconds and shorts, and actual weight of goods. These production records coming in from the mill should be carefully checked, after which they should be kept in comparative form so that any change will be quickly noted, and if need be cost figures adjusted.

Waste records should show net waste, and actual waste by class; that is, the pounds of notes, strips, yarn waste, etc., should be listed separately. After checking, the information should be worked up and placed in comparative form.

At the close of each period the accounting department should furnish the cost department with a list of the expenditures covering the period. Items lime supplies should

be divided among the departments. The expenditures should be listed and each item divided by the total pounds of goods produced during the period. The result will be the average cost per pound, and these figures should be posted each period in comparative form. Any variation will be quickly noted. These expenditures should also be compared with the budget on which fabric costs are based. As long as they are in line, there is no need to refigure fabric costs.

The cost department should also keep a record of actual weight of the different fabrics, this to be compared with the standards.

If the man in charge of the cost work is to handle the work intelligently, it is absolutely necessary that he keep in close touch with the operation of the mill. By keeping the production, waste and costs in comparative form, he is able to quickly note any change in labor, yarn numbers, weaving efficiency, or anything that would affect costs. He should watch the slasher room reports to see that he is using the right percentage of size in his calculations.

Relation of Cost Department to Accounting Department.

The hardest work that the cost engineer of the Institute has got to do is to convince the mills that there is little connection between cost engineering and accounting. At the close of each period, and as quickly as possible after the close, the accounting department furnishes the cost department with a list of the expenditures covering the period. As stated before, such items as supplies, oils and lubricants, should be split up between the departments. At the end of each accounting period it is the duty of the cost department to price the stock-in-process and finished goods inventories. Outside of this there is no necessity of further business between the two departments, although it is very desirable to have the two departments nearby, as one is of great help to the other.

In my opinion, no accounting should be done in the cost department. The accounting department will handle this work. It is well to bear in mind that the selling department will base quotations on cost figures submitted (whether they sell at a profit and at the end of the period the profit and loss statement shows a loss. In other words, it is the job of the cost department to let

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Index To Advertisers

Where a — appears opposite a name it indicates that the advertisement does not appear in this issue.

Page	Page
A	I
Abbott Machine Co. — 25	Iselin-Jefferson Co. — 28
Abington Machinery Works — 47	Johnson, Chas. B. — —
Akron Belting Co. — —	K
Allis-Chalmers Mfg. Co. — —	Kaumagraph Co. — 11
American Bobbin Co. — —	Keever Starch Co. — 36
American Aniline & Extract Co. — 21	Klipstein, A. & Co. — —
American Glanzstoff Corp. — —	L
American Moistening Co. — 23	Lambeth Rope Corp. — 41
American Textile Banding Co. — 50	Lane, W. T. & Bros. — 51
American Yarn & Processing Co. — 19	Langley, W. H. & Co. — 44
Amory, Browne & Co. — 44	Lawrence, A. C. Leather Co. — —
Apco-Mossberg Corp. — —	Lea David M. & Co. — 39
Armstrong Cork Co. — 15	Leslie, Evans & Co. — 44
Arabol Mfg. Co. — —	Lestershire Spool & Mfg. Co. — —
Arnold, Hoffman & Co. — 51	Lincoln Electric Co. — —
Ashworth Bros. — 50	Link-Belt Co. — —
Associated Business Papers, Inc. — —	Lowell Shuttle Co. — 30
Atkins, E. C. & Co. — —	M
Atlanta Brush Co. — —	Marston, Jno. P. Co. — 38
B	Mathieson Alkali Works — —
Bahnson Co. — —	Mauney Steel Co. — —
Bancroft, Jos. & Sons Co. — —	Mocasin Bushing Co. — 42
Barber-Colman Co. — —	Moreland Sizing Co. — —
Barber Mfg. Co. — 29	Morse Chain Co. — —
Belger Co. Inc. — —	N
Bell, Geo. C. — 28	National Aniline & Chemical Co. — 6
Bond, Chas. Co. — —	National Ring Traveler Co. — 45
Borne, Strymer Co. — —	Newport Chemical Works, Inc. — —
Bosson & Lane — —	N. Y. & N. J. Lubricant Co. — —
Bradley, A. J. Mfg. Co. — —	O
Briggs-Schaffner Co. — —	Oakite Products, Inc. — —
Brown, David Co. — 30	P
Butterworth, H. W. & Sons Co. — —	Page Fence & Wire Products Assn. — 42
C	Parker, Walter L. Co. — 35
Carrier Engineering Corp. — —	Parks-Cramer Co. — 4
Catlin & Co. — 45	Penick & Ford, Ltd. — —
Charlotte Leather Belting Co. — —	Perkins, B. F. & Son, Inc. — 18-23
Charlotte Mfg. Co. — —	Philadelphia Drying Machinery Co. — 29
Celanese Corp. of America — —	Polk, R. L. & Co. — 43
Cocker Machine & Foundry Co. — —	R
Collins Bros. Machine Co. — 41	Ramsey Chain Co. — Insert
Commercial Fibre Co. of America, Inc. — —	Reeves Bros., Inc. — 44
Adam Cook's Sons — —	Roessler & Hasselacher Chemical Co. — —
Corn Products Refining Co. — —	R. I. Warp Stop Equipment Co. — —
Courtney, Dana S. Co. — 27	Rice Dobby Chain Co. — 43
Crompton & Knowles Loom Works. — —	Rogers Fibre Co. — 40
Crump F. M. & Co. — 44	Roy, B. S. & Son — 41
Curran & Barry — 30	S
Curtis & Marble Machine Co. — —	Saco-Lowell Shops — —
Cutler-Hammer Mfg. Co. — —	Sargent's, C. G. Sons Corp. — —
D	Schieren, Chas. A. Co. — —
D. & M. Co. — —	Scott, Henry L. & Co. — Insert
Dary Ring Traveler Co. — —	Seydel Chemical Co. — 46
Deering, Milliken & Co., Inc. — 44	Seydel-Woolley Co. — —
Diamond Chain & Mfg. Co. — —	Sipp Machine Co. — —
Dixon Lubricating Saddle Co. — 34	Sirrine, J. E. & Co. — —
Drake Corp. — —	S. K. F. Industries — Insert
Draper, E. S. — 28	Sonneborn, L. Sons — —
Draper Corp. — 1	Sonoco Products — —
Dronfield Bros. — 38	Southern Agricultural Chemical Corp. — 46
Duke Power Co. — 17	Southern Ry. — 41-43-47
Dunning & Boschert Press Co., Inc. — 29	Southern Spindle & Flyer Co. — —
Duplan Silk Corp. — 16	Stafford Co. — 52
DuPont de Nemours, E. I. & Co. — —	Standard Nut & Bolt Co. — 42
E	Standard Oil Co. — —
Eastwood, Benjamin Co. — 52	Steel Heddle Mfg. Co. — 21
Eaton, Paul B. — 42	Stein, Hall & Co. — —
Eclipse Textile Devices, Inc. — 12	Stevens, J. P. & Co., Inc. — 44
Economy Baler Co. — —	Stone, Chas. H. — —
Emmons Loom Harness Co. — 46	Sullivan Hardware Co. — 43
Entwistle, T. C. Co. — —	Sydnor Pump & Well Co. — 42
F	T
Fabreeka Belting Co. — 29	Takamine Laboratories Inc. — —
Fairbanks-Morse & Co. — —	Taylor Instrument Companies — 37
Fales & Jenks Machine Co. — —	Terrell Machine Co. — —
Farish Co. — 28	Textile Finishing Machinery Co. — —
Ferguson Gear Co. — —	Textile Mill Supply Co. — 51
Ford, J. B. Co. — 43	The Texas Co. — —
Foster Machine Co. — Insert	Timken Roller Bearing Co. — —
Franklin Process Co. — —	Tolhurst Machine Works — 35
G	Tripod Paint Co. — —
Garland Mfg. Co. — 29	U
Gastonia Belting Co., Inc. — 43	U S Bobbin & Shuttle Co. — Insert
General Dyestuff Corp. — 33	U. S. Ring Traveler Co. — 46
General Electric Co. — —	Universal Winding Co. — 46
Georgia Webbing & Tape Co. — 30	V
Gildden Co. — —	Victor Ring Traveler Co. — 47
Graton & Knight Co. — 2	Fred'k Viator & Achelis — 28
Great Northern Hotel — —	Viscose Company — —
Greist Mfg. Co. — 39	Vogel, Joseph A. Co. — 45
Greenville Belting Co. — —	W
H	Watts, Ridley & Co. — —
Harris, A. W. Oil Co. — 39	Wellington, Sears & Co. — 44
Harrison-Wright Co. — 45	Whitin Machine Works — 3
Hart Products Corp. — 27	Whitinsville Spinning Ring Co. — 41
H. & B. American Machine Co. — 14	Williams, J. H. Co. — —
Houghton, E. F. & Co. — 13	Wilson, Wm. & York, Inc. — 45
Howard Bros. Mfg. Co. — —	Wilts Veneer Co. — 42
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Acreage Reports

IN our issue of March 22nd we gave cotton acreage reports as received from several sections of the South. The following are reports received since that issue. We call especial attention to the reports from Oklahoma and Texas:

THOMASTON, GA.

Same as last year.

MOULTRIE, GA.

8 to 10% more than last year.

FLORENCE, ALA.

10% increase.

SELMA, ALA.

5% increase.

OPP, ALA.

% more. Nearly all land prepared and ready to plant.

MORRILLTON, ARK.

Same as last year.

MAGNOLIA, ALA.

1% more. About the same as last year.

DUNCAN, OKLA.

Same as last year. Subject to the weather of the next two weeks and market trend.

ALTUS, OKLA.

Same as last year.

FREDERICK, OKLA.

10% less than last year.

WALTERS, OKLA.

2½% less. More land in wheat.

DURANT, OKLA.

30% less than last year.

ADA, OKLA.

10% less than last year.

BRENHAM, TEX.

5% more than last year.

GRANBURY, TEX.

10% less than last year.

BURNETT, TEX.

Same as last year.

COMANCHE, TEX.

50% less than last year. This reduction is caused by failure to make cotton on account of boll weevil.

ATHENS, TEX.

5% less than last year.

ITASCA, TEX.

8% less than last year.

CANTON, TEX.

6% less than last year.

SAN ANGELO, TEX.

Same as last year.

LOCKHART, TEX.

15% less than last year.

CUERO, TEX.

10% less than last year.

Textile Chemists To Meet

The Piedmont Section of the American Association of Textile Chemists and Colorists will hold its spring meeting at the Pointsett Hotel, in Greenville, S. C., on Saturday evening, April 14, 1928.

"Some Possible Applications of pH Control in the Cotton Industry" is the title of a paper to be presented by Chas. E. Mullin, M.Sc., F.A.I.C., F.T.L., professor of Textile Chemistry and Dyeing, Clemson College, S. C. Professor Mullin will have with him the hydrogen ion concentration determination equipment for both potentiometric and colorimetric work, recently installed at Clemson, which he will use in connection with his paper; members and guests will be invited to examine and experiment with this equipment. Professor Mullin is not only a practical teacher, but is an investigator and author of note, and his paper is calculated to arouse a keen desire on the part of those present to get to the bottom of the scientific questions facing them.

"Beam Dyeing" will be discussed by F. H. S. McCoy, superintendent of dyeing of the Lola Manufacturing Company, Stanley, North Carolina. Mr. McCoy has been active in the development of the Craig-Hornbuckle Beam Dyeing Machine, and is especially qualified to discuss this method of dyeing, which is commanding more and more attention of cotton manufacturers throughout the country.

"The Sulphonation of Textile Oils" is the subject of a paper to be presented by E. L. Fletcher, manager of production and research of the Burkart-Schier Chemical Company, of Chattanooga, Tenn.; much interest is being manifested by manufacturers in finishing oils, so that a discussion of their production by the manager of a leading Southern plant should prove of unusual interest to the finishing industry of the South.

An invitation is extended to all mills interested in these subjects to be represented at this meeting. Dinner will be served at 7 p. m.

Program For Georgia Meeting

T. M. Forbes, secretary of the Cotton Manufacturers' Association of Georgia, announced that the twenty-eighth annual meeting of the association to be held at Augusta, April 5 and 6 program was crowded for the two days with features and entertainment.

The session will be held at the Forrest Hills-Ricker Hotel, and the meeting will convene at 10 a. m. Thursday to hear Henry G. Howard, of Augusta city council, in his welcome address, the officers' annual reports, and the annual address of the president, W. H. Hightower, president of the Thomaston Cotton Mills, Thomaston, Ga.

D. S. Keogh, president of the Bedeaux Company, of New York, will deliver an address on the "Bedeaux System of Efficient Mill Operation."

The annual banquet will be held Thursday night and Dr. D. W. Daniel, of Clemson, will be the speaker.

Corn Starch

(Continued from Page 14)

pectively oils, are true fats, easily saponified, good lubricants, inexpensive, and are, by far, most generally used in sizing mixtures. The animal fats, on account of lower cost, are usually given preference.

Hydroscopic Agents.

Although many hydroscopic materials are known, the number applicable to sizing mixtures is small. Calcium chloride, magnesium chloride, glycerine, and the probably coming sodium lactate, about complete the list.

Calcium and magnesium chlorides possess satisfactory moisture-absorbing properties and, because they are cheap, are most frequently used in the so-called sizing compounds. Unfortunately, both salts, when heated to high temperatures, in the presence of moisture, dissociate and form hydrochloric acid, which has a tendering effect upon cotton fiber. Glycerine, while more costly, is entirely free from the above objection, and the general opinion of those who have adopted its use is that a yarn of better weaving quality is obtained.

Sodium lactate has possibilities in this field and may, when cheap enough, as it is likely to be, bring improvement to the sizing process.

The medium by which these essential ingredients are incorporated and homogenized should be clean, soft water. In fact, careful manufacturers, in regions where the natural water is hard, use steam condensate for mixing size.

In a discussion of this kind, it would be unwise to dogmatically state the proportions in which the several ingredients should be present in a sizing mixture. Conditions vary so widely that an intimate knowledge of all the factors is necessary to reach a rational conclusion. This much may be stated, with positiveness; when the proper relationships have been established, all necessary care should be used to maintain accuracy and uniformity both in preparation and application. This involves proper equipment and control of operation.

Careful analysis of sized and unsized yarn and cloth woven from the sized yarn is always necessary in arriving at a properly balanced formula. A fairly extensive experience with managers of textile plants in different parts of the country discloses a tendency to place great stress upon the cost of size per kettle prepared. For the most part, it has been difficult to establish the conviction that the important point is rather the cost of size per yard or pound of cloth produced. Very frequently, a substantial increase in cost of materials used in the size mixture is many times overbalanced by an increase in production. A very slight increase in the production percentage may pay a good dividend on the amount invested in sizing. However, patience and watchfulness are required to determine this.

Selection of Starch.

As has been seen from the flow sheet starch is manufactured in four forms as far as physical state of aggregation is concerned—pearl,

powdered, lump, and crystal; and in two general types in regard to processing, namely, unmodified starches and modified starches. The modified starches are further differentiated into thin boiling starches and alkali starches (thick boiling). It should be clear that both unmodified and modified starches are obtainable in all four forms—pearl, powdered, lump, and crystal. It is true that on account of demand all types are not always manufactured in all four forms.

In commerce, the term "pearl starch" without modification means the crudest form commercially possible—sometimes called the pig iron of the starch industry. It is, therefore, lowest in price. Being "quick-dried," it has no definitely marked texture—a mixture of powder and larger particles up to the so-called "crystals." Powdered starch is obtained from the pearl form by a beating and bolting process. It is, therefore, cleaner and also lower in moisture, commanding a slightly higher price. By steaming powdered starch and subjecting to high pressure, a solid, compact mass is obtained. This, when crushed and screened to size, gives "lump starch." "Crystal starch" is slow dried, so that the irregular prisms, "crystals," are formed. From this, it is clear that the type of starch is more important than its physical form.

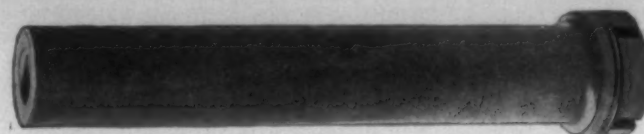
The modified starches represent different types. The thin-boiling varieties have been treated to produce thin, slow-congealing pastes. The alkaline starches have been purposely made alkaline and usually give thicker pastes.

Notwithstanding claims to the contrary, no commercial starches are strictly neutral. Starch is normally very slightly acid and, if alkaline, has been intentionally given this reaction. A strictly neutral starch will gradually acquire a slight acid reaction. The normal acidity of starch is about 0.06 per cent.

Thin-boiling starches are produced by a mild acid treatment to induce incipient hydrolysis. This action is checked at the proper point by completely neutralizing the acid and standardizing the pH value.

The selection of modified or unmodified starches, respectively thin-boiling starches of high or low fluidity, depends upon the result to be accomplished by their application. A full discussion at this time of how such selections are made would be far beyond your patience.

This topic will be discussed very briefly. Before the development of thin-boiling starches, emphasis was placed upon the thickness of starch pastes; and this property was expressed in terms of viscosity. When the marked advantages of thin boiling starches became established, emphasis was transferred to the thinness of the pastes and is now expressed in terms of fluidity. Viscosity and fluidity are reciprocal terms. High fluidity is low viscosity and vice versa. It soon became necessary to standardize fluidities, and a purely arbitrary scale and method were adopted. The thin-boiling starches are now referred to as having fluidities of 20, 40, 50, 75 and 90, as the case may be. The fact that these values are purely relative



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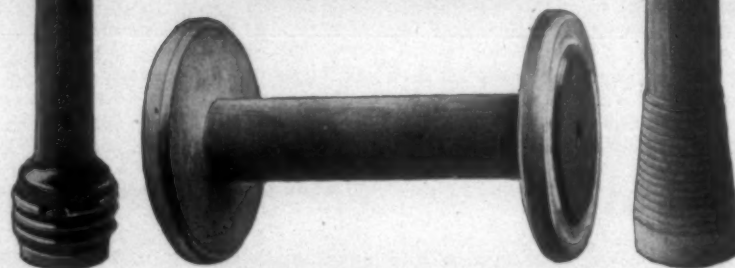
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has no significance as long as they insure regularity and uniformity. The standards of measurement vary with the different manufacturers, and this sometimes causes confusion. As a matter of fact, it makes no difference what scale is used as long as uniformity is maintained.

Sizing Equipment.

The style and extent of equipment used depend upon the number of slashers and the character of work to be done. A small plant with only one or two slashers will usually have one size kettle. In such cases a kettle as shown is recommended. (Screen—Diagram "A.") Shows a kettle provided with a single turn perforated steam coil of copper or brass pipe, a closed steam coil consisting of about two and one-half turns of copper or brass pipe, a stirrer, with two three-bladed propellers on a vertical shaft, and three symmetrically placed baffle plates fastened vertically to the shell of the kettle. The kettle shown in this diagram is intended to be used on a system which has no circulating system or storage kettle, that is, where the plant is small or where on account of colored work or differences in formulas, the size for each slasher is kept separate. Such a kettle may be elevated above the slasher, which is fed by gravity as needed, or placed on the same level and the size pumped.

The size is boiled by means of both coils. When the boiling has been sufficient to properly prepare the size, the perforated coil is closed and the size kept hot by means of the closed coil until entirely consumed. The size is therefore maintained at the proper temperature and concentration. There is no dilution from condensed steam, which would be the case if the temperature were maintained by an open steam jet. When necessary, the two

and one-half turns closed coil may or three and one-half turns, or even four turns. This coil might be connected with advantage to a steam trap. The perforations in the open coil should be located in the two lower quadrants of the cross section of the pipe, opening alternately to the center and circumference, of such size and number and so distributed around the circle as to insure a uniform distribution of the injected steam.

The spacing of these coils should be approximately as indicated, at least two inches clearance between turns, side wall, and bottom of kettle, to prevent the objectionable baking or caking of the size. The walls of the kettle should be insulated, to conserve the heat. The speed of the shaft should be sufficiently high to insure a complete emulsification of the contents of the kettle, probably about 80 r.p.m. The vertical baffle plates are important, as they prevent an orderly procession of the mixture and caused the desired turbulent motion. The special type of valve shown at the drawing-off outlet is selected because on opening the disc moves towards the interior of the kettle and secures a free passage for the size, since no clogging of the valve occurs. Pipe lines leading from the kettle to the slasher should be insulated, to prevent cooling of the size in transit. It will be seen that "A" serves the joint purpose of a boiling kettle and a storage kettle for a system too small to warrant the installation of both.

In the larger plants with several slashers, the circulating system has been generally adopted. The boiling and storage kettles are separate units. (Screen—Diagram "B.") This boiling kettle is exactly like the first shown, with the exception that the closed steam coil has been omitted. A kettle of this type is intended to

be used as a boiling kettle in conjunction with a circulating system and a storage kettle. All statements in regard to the perforated coil, the stirrer, the baffle plates, speed of shaft, insulation, and draw-off valve apply equally here. This kettle is best placed on the same level with the storage kettle and the slashers. The size is cooked by means of open steam jets and, when sufficiently boiled and brought to proper concentration, is transferred by means of a pump through insulated pipes to the storage kettle. A plant of any size would require two or more of such boiling kettles to keep the system supplied.

(Screen—Diagram "C.") This diagram shows a storage kettle. The details are the same as described in the first diagram, except the perforated coil is omitted. A kettle of this type is intended as a storage kettle to keep the size hot without dilution and should be used with a battery of boiling kettles, in connection with a circulating system. The speed of the shaft should be somewhat slower, about 50 r.p.m., since the emulsion has already been formed in the boiling kettle and the stirring is needed only to equalize the temperature throughout the mass. The storage kettle is best placed on the same level with the boiling kettles and slashers and the size pumped through insulated pipes to the size boxes and back again to the storage kettle.

At the end of a day's work, all size from the boiling kettles and size boxes may be collected in the storage kettle and, by means of the closed coil and stirring apparatus, be brought to the proper temperature and consistency for immediate use the following day without dilution, loss of time and materials.

It will doubtless be of interest to show a diagram illustrating what might be taken as a typical "circu-

lating system." (Screen—circulating system.)

Time will not permit detailed discussion of devices for temperature control and their application to sizing operations, important and desirable as they are. The statement of a few general principles must suffice.

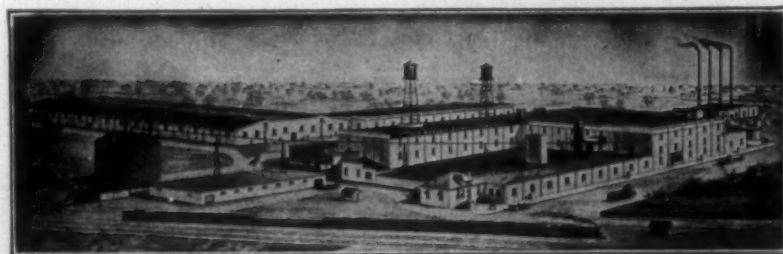
Careful investigation has established that the time consumed in raising the temperature of a size mixture from room temperature to the boiling point is of no significance, except in cases where the rather questionable practice of converting or modifying starch in the size kettle prevails; that is to say, producing a thin-boiling starch from a thick-boiling starch by the action of a converting agent in the kettle. However, how long the mixture should be held at the boiling point before using is of importance. This time will vary with different starches. The minimum boiling period for corn starch should be forty-five minutes.

There is an optimum size-box temperature which should be determined and maintained as closely as possible, to secure the best results.

Perhaps the most common error met with in sizing is the over-drying of the yarn on the slasher. An important factor, but by no means the only one, in avoiding this fault is proper control of the temperature of the slasher cylinder.

Any attempt at this time to discuss the uses of starches, respectively dextrines, in finishing and dyeing processes would be too great a tax upon your patience. You well know that these materials play a most important part in preparing fabrics for the final consumer. The variety of the demand is indeed surprising, and starch and dextrine manufacturers must be ever alert to satisfy constantly changing tastes and styles.

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Modern Humidifying Methods

(Continued from Page 18)

Consider the case of the ordinary steam boiler. Steam is produced by the application of heat in the fire box, which vaporizes the water and increases the vapor pressure within the boiler. We could hardly expect to accumulate pressure in a steam boiler with the valves, cleanouts, pipe outlets, etc., all open; only with an excess heat application would such be possible.

Just exactly in a similar manner, it becomes difficult to build up vapor pressure or increase the relative humidity when the windows and

Leakage.

doors in our mills are leaky or open. To build up humidity or to increase the vapor pressure, a tight inclosure is necessary. The greater the cracks and openings, the more water-evaporative capacity is required to secure and maintain the same humidity.

But, one might say, a miniature evaporator would then do for a large room, provided there were no leakage. Yes, that is so; and one object of this paper is to point out the numerous ways in which water vapor disappears from a work room, and why evaporative capacities suitable and adequate for one room might be either excessive or inadequate for another room of the same volume, where, to an unobservant person, the two rooms might appear to have other uniform characteristics.

As above stated, heat is required under ordinary conditions to effect the evaporation of water. In a boiler it is supplied by fuel, such as coal or wood. In a room it is still the controlling factor. The British Thermal Unit (which is the amount of heat required to raise one pound of water one degree F.) is probably the most customary way of expressing heat transfer. We find a source of such heat units in the friction of the machinery; power required to produce the mechanical movements; the sun's rays transmitted through walls, floors and ceilings; in the bodies of the operatives; the mill heating systems; and other agencies. All the B. T. U.'s given off from such sources tend to raise the temperature of the inclosure; and, when free moisture or water is present, its evaporation into water vapor proceeds at a more or less rapid rate; and, in the case of a comparatively tight room, where loss of vapor pressure is slow, humidity builds up, becoming higher and higher. And this vapor pressure is secured between the rate at which the moisture is evaporated and the rate at which leakage takes place. When that point is reached equilibrium is established, and the humidity no longer rises, unless the leakage grows less or the rate at which the moisture is added increases.

Increasing the leakage, such as by opening the windows, allows the water vapor to escape; the vapor pressure drops; and the relative humidity falls off accordingly. So the successful humidification and auto-

matic regulation of any inclosure contemplates a supply of free moisture of sufficient amount that the available B. T. U.'s will evaporate it at a rate such as to keep an even balance with the amount lost through absorption and leakage.

Leakage is not always entirely through cracks or ill-fitting windows or open doors. The ordinary brick walls of our mills are frequently exceedingly hygroscopic. High humidities within a room often manifest their presence on the outside, by discoloration of the brick. The moisture on the inside is absorbed by the porous, spongy brick and is transmitted through the wall, and given off into the atmosphere on the outside. In some cases, this loss in moisture is a decided one.

In confining our attention to textile plants and the individual unit system of humidifying, it was only a few years ago that the method of determining the necessary humidification capacity was to calculate the number of such units required from the cubical contents of the room and the character of the operation there carried on. For instance, a weave room of 100 width, 200 feet length and 15 feet average ceiling height would contain 300,000 cubic feet. A humidifier unit of the earlier days was thought to satisfactorily take care of 15,000 cubic feet of room volume, so a simple calculation in division showed that twenty humidifiers were necessary for that room. In a similar manner, but with a different ratio, the necessary number of humidifiers was easily and quickly calculated for a spinning room, or a spooling and warping room, or a carding and roving room. They were all estimated by the rule of thumb.

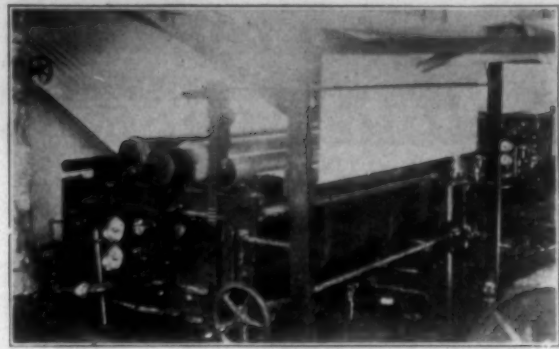
Determining Necessary Humidification.

In a very few cases such installations were fairly satisfactory; in none, wholly so; and in most cases alterations were soon required. It was a hit and miss method, with the emphasis largely on the "miss."

When automatic humidity regulation first became available and was applied to existing humidifying systems, it frequently had very little work to do, because there were so few installations where the moisture-producing devices were anywhere near adequate to allow the regulation to function except during wet weather outside.

So the industry came to recognize the need of engineering skill, which stepped in and applied the same sound principles which had previously been used in designing ventilating, heating and humidifying equipments occasionally used in other industries than the textile; and we have arrived at today's practice, which—while not yet perfect—still represents a notable advance over the old methods.

Leaving for a moment the method of estimating the necessary humidifying capacities, the question of how much evaporative capacity should be provided in the respective departments of a mill becomes an essential consideration. The early custom in England, which was brought into America, consisted of regulat-



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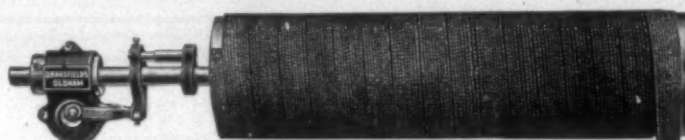
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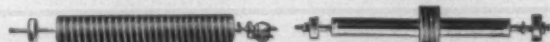


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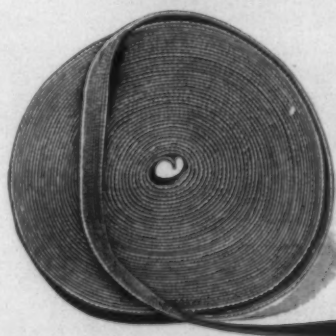


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ing the humidity by hand, to an arbitrary scale corresponding to the comfort conditions of the operatives. No study apparently had been made as to the regulation of humidity over changes in temperature with reference to the performance of the textiles. The English Cotton Cloth Factories Act seemed to be the whole guide.

Moisture Regain.

Hartshorne presented the idea that good textile manufacturing required certain relations to exist between humidity and temperature, because on these two factors depended the moisture or, as he called it, the "regain" of the fiber. He demonstrated conclusively that the best manufacturing conditions were obtained when the moisture in the fiber and not in the room was given prime consideration.

Regain is a function of both humidity and temperature. It can easily be visualized by thinking of a 100-pound mass of bone-dry cotton. If this is placed in an atmosphere where the humidity and temperature are such that after a reasonable time (several hours' exposure) it gains six pounds in weight—that is, the total weight is now 106 pounds—then this cotton will be said to have 6 per cent cotton regain. If the temperature and humidity are such that it gains ten pounds in weight, so that the total weight becomes 110 pounds, it will be said to have a 10 per cent cotton regain. Regain is the percentage moisture content of the fiber based on its dry weight.

Now, a change in either the temperature or the humidity affects this regain. Changes in humidity, with the temperature remaining constant, exert a very much greater effect on the regain than changes in temperature with the humidity remaining constant. For instance, at about 80 degrees temperature it will require a change only of 7 per cent in relative humidity to effect an increase or decrease of 1 per cent in cotton regain, whereas a change of more than 50 degrees in temperature would be required to effect the same 1 per cent change in cotton regain.

Since Hartshorne demonstrated that in each individual manufacturing operation the regain should remain stationary throughout that operation, it is evident that most careful attention should be paid to uniform humidity; while more latitude can be given to temperature variations without seriously affecting the regain. It is further evident that if the temperature in our mills during the summer rises unduly, and we can not lower it except by the very expensive and impracticable method of refrigeration, it is still possible, by properly varying humidity, to maintain in the stock in process a uniform regain.

The exact humidity in the respective manufacturing operations in the older days was to a considerable extent subject to the whim of the overseer; and while that whim was sometimes based on experience and approximately correct, yet it was not always a true guide. Today a matter of a few hours' trial in slightly changing the relative humidity up and down the scale will

determine the exact point at which the best results are secured, and then automatic regulation does the rest.

It is perfectly true that a fresh supply of raw stock of either different staple or different initial moisture content may cause a change in the atmospheric conditions that were previously found to be the best. However, a humidity change can be quickly and easily made; and, when once the readjustment is effected and the right cotton regain determined, practically all the troubles due to high, low and variable humidity are overcome. Gear changes become largely past history, and smooth-running work is the rule rather than the exception.

Unfortunately, Hartshorne's experiments were never carried to a conclusion, to cover all lines of textile constructions; and we have found since he made his investigations that as the textile fiber is advanced in manufacture the laws of regain as established by Hartshorne do not equally well fit the finished product. Hartshorne's tables apply specifically to loose, open, raw stock. At each successive operation, as the fibers are twisted and the density of the fabric becomes more pronounced, the ability to hold moisture becomes less and less for the same conditions of temperature and humidity.

For example, loose, raw stock in an atmosphere having a temperature of 70 degrees and 65 per cent relative humidity, according to Hartshorne's tables, will have 88 per cent cotton regain. If a piece of ordinary duck is hung in this same atmosphere for a sufficient time to secure moisture equilibrium, and is then dried out in an oven, we find the cotton regain to be 65 per cent. The process of manufacture which advances the raw stock to the finished duck has so changed the absorptive properties of the raw fiber as to represent a difference of over 2 per cent in regain characteristics.

Relation of Temperature and Humidity to Regain.

Fabrics less dense than duck and soft-spun yarns occupy intermediate regain positions. Investigations in a number of laboratories are now under way to determine more exactly the relation of temperature and humidity to the regain of each construction in the complete line of textile products. Until such data have been compiled and accepted, the prevailing custom in test laboratories will undoubtedly continue, which is to expose the test samples for several hours, or until their weight becomes constant, to an atmosphere of 70 degrees temperature and 65 per cent relative humidity, and then dry out in the oven. This at present is called a "standard atmosphere" by some divisions of the textile industry, but it has not been generally adopted throughout the textile field as a standard and probably will not be without some modification or qualifying conditions. Southern manufacturers find it practically impossible to maintain such a standard atmosphere during

the summer months without elaborate test rooms equipped with refrigerating apparatus to cool the hot summer air as low as 70 degrees. A standard, to be practical, must be of easy adaptation; and the above standard of 70 degrees temperature is not practical in the South during the summer.

Geographical Location.

Up to this point, we have found it necessary to provide humidification sufficient in amount to take care of leakage, ventilation, and machinery heat, and to vary it, along with the temperature, in accordance with the regain laws. Now, are there still other factors that enter into the estimation of the necessary evaporative capacity? Does a New England mill require the same evaporative capacity as one in North Carolina, and shall be put in our South Carolina spinning room the same evaporative capacity as we install in a spinning room in Texas? What effect, if any, does geographical location have, considering the fact that our textile industry is so broadly scattered? Where is it hottest? What section is driest, and what is its relation to evaporate capacity?

Naturally, the most authoritative institution for consultation would be the United States Weather Bureau's local stations scattered over this broad manufacturing territory. Their records are taken by trained observers, always twice, frequently three times, and sometimes oftener each day; and automatic recorders, carefully adjusted, make reasonably accurate continuous records of humidity and temperature.

Correspondence with more than fifty of these United States Weather Bureau stations over the eastern and southern sections of the country and a careful examination of their temperature and humidity records over a period of more than five years have shown a marked variation in summer dryness and temperature over this territory.

It should be remembered that in estimating the evaporative capacity for a humidifying system we are required to do it on the basis of the dry peak. Just as in a power plant the engine must be designed to carry the maximum demand, so in a properly designed humidifier system the evaporative capacity must be adequate to handle the most severe conditions of dryness and heat.

The result of this geographical temperature and humidity study was to disclose the fact that in certain parts of Texas and Oklahoma about 33 1-3 per cent more evaporative capacity is required than in the cooler and more moist New Bedford and Fall River sections of New England. Intervening sections indicated more or less moisture demand. These variations are the result of natural conditions of river valleys, coastal exposures, arid plains; and the extreme atmospheric conditions can only be overcome by properly designing the humidifying equipment and installing it on a basis of adequate capacity to meet the greater or less natural demand, as the individual geographical location may necessitate. And why should this not be expected in hu-

midifying? We would naturally expect that the heating system for an industrial plant in Maine would require to be of greater capacity than one required in a similar plant in Georgia.

So, geographical location enters into our engineering figures and has been so tabulated that no guesswork for any particular locality is necessary, and the need for greater or less humidification for a location in Mississippi can be as easily foretold as for a plant in Massachusetts.

Assuming that our mill site is chosen, there remains another consideration. How cool do you wish to maintain the inside temperature on summer days that sizzle outside? As stated above, heat is necessary to evaporate free moisture into water vapor; and by spraying this finely divided water into the air B. T. U.'s are absorbed and temperature reduced. Each gallon evaporated per hour absorbs the equivalent of 3½ horsepower. But if our room is shut up, the humidity continues to build; and, as the wet-bulb temperature rises, the sense of personal comfort begins to enter into the problem.

And so it becomes desirable at high summer temperatures to open windows in an orderly manner and deliberately provide for natural ventilation to carry off the hot, humid air, permitting it to be replaced by outside air—usually having a much less moisture content; and it follows that, by proportioning the evaporation to the ventilation, within quite wide limits decided temperature reduction is possible without interfering with the necessary and usual working humidities.

Even in cases where excessive horsepowers are expended and where without humidifiers or with inadequate ones the inside temperatures would ordinarily rise ten to twenty degrees above the outside temperature, still in such cases it is practically and economically possible to enjoy inside dry-bulb temperatures several degrees lower than the high outside temperatures.

Once again let us make application of our B. T. U. units. In the case of a warp section of a spinning room running coarse numbers, where the horsepower to drive each frame is high; and especially where this room may be on the top floor with a roof whose temperature on a hot summer day rises to 130 degrees and sometimes higher; the windows broad and high—in fact, modern "daylight construction;" and especially if the frames are driven with direct connected motors; these factors all require us to provide far more evaporative capacity than would be necessary in the fine yarn spinning room, where horsepowers per frame are low and frequently arranged with four-frame drive, and where even the required humidities are not so necessarily high as in a coarse yarn room. A practical comparison of such requirements is interesting.

A spinning room in a South Carolina mill contains 486,000 cubic feet, in which there is expended 800 horsepower, or substantially 164 horsepower per 100,000 cubic feet. Mill requirements are usually rated

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in horsepower per hundred thousand cubic feet, because it unifies the basis of comparison and renders easy the application of standardized capacity tables. In addition to the heat from the machinery, there is a heat transfer through the walls, ceiling, etc., of just about one-third of the machinery heat, making a total quantity of heat produced in the room 2,591,000 B. T. U.'s per hour.

From the geographical location of this mill our Weather Bureau chart indicates that it is in a 20-degree depression zone, which gives us an index of the extreme dryness that can be expected during the hot weather and, of course, determines what we call our "cooling margin."

Let us assume that we wish to maintain 65 per cent relative humidity in this spinning room and do not wish the sensible temperature to rise above 82 degrees. Application of these data to our standardized formulae indicates that to secure these results in this particular room it would be necessary to evaporate 80 gallons of water per hour for each 100,000 cubic feet of space; and, in view of the fact that this room contains 486,000 cubic feet, it will be necessary to evaporate 368 gallons of water per hour. To hold the inside dry-bulb temperature to as much as eight degrees below the outside dry-bulb temperature, we shall require an air change of one every four and one-half minutes, or thirteen changes per hour.

Now, contrast those requirements with that of a spinning room in

North Carolina, on fine numbers, having a cubical content of 500,000 cubic feet. This room has a horsepower input of 480, or, in terms of B. T. U.'s, 1,222,000, to which we add the infiltration heat through walls, ceilings, and other sources, amounting to approximately 725,000 B. T. U.'s, or a total heat capacity of 1,947,000 B. T. U.'s per hour. In this fine-yarn mill humidities in excess of 60 per cent are seldom desirable. Assuming that it is the relative humidity asked for, and that all outside temperatures and desired inside temperatures are the same as for the previous mill, the application of these factors to our formulae show that this room will require us to evaporate 275 gallons of water per hour, and, in order to maintain the necessary cooling, provide nine air changes per hour, or one about every seven minutes.

Humidity Varies With Mill Product.

Here we see that against the spinning room of the heavy yarn mill, requiring 368 gallons of water per hour, our fine-yarn spinning room requires 275, bearing in mind of course that 5 per cent less relative humidity is contemplated. But the necessary humidifying equipment in the heavy mill is considerably more expensive than in the fine yarn mill, and mostly on account of the additional horsepower.

It is interesting to realize what immense quantities of water must be evaporated in a large mill to maintain humidities and reduce temperatures during the hot weather,

and this is well illustrated by the evaporative capacity in a large South Carolina mill.

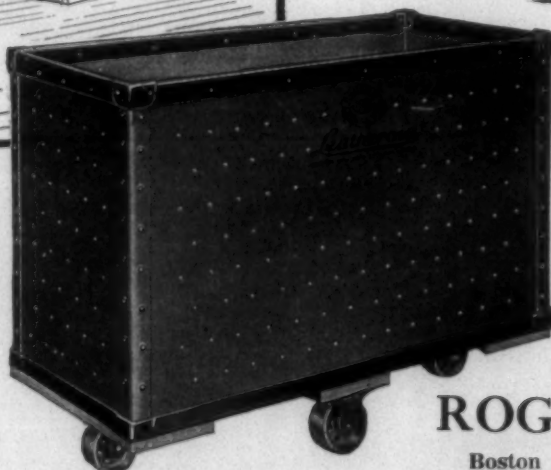
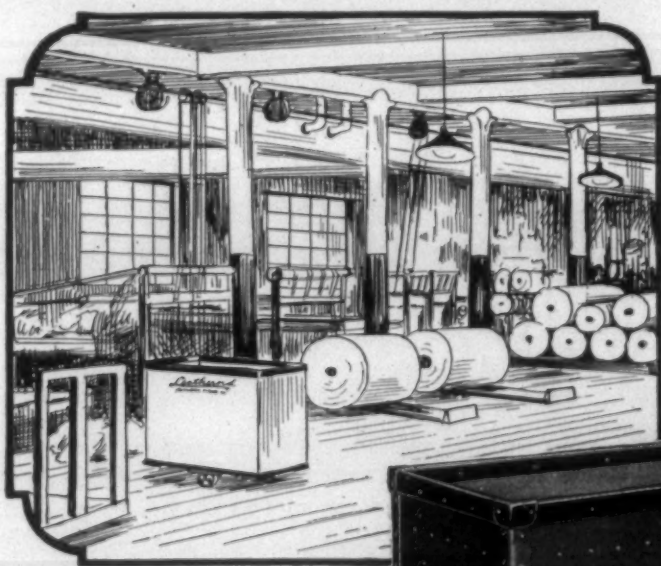
The actual horsepower developed by the machinery in this mill is approximately 3,900, representing during a ten-hour run 99,636,750 B. T. U.'s. Based on an outside maximum summer temperature of 98 degrees, we have a heat infiltration through walls and ceilings and from operatives, etc., of approximately 125,618,610 B. T. U.'s, making the total number of B. T. U.'s 225,355,360, which, for the ten-hour period, represents the equivalent of 88,500 mechanical horsepower. To hold the usual designated humidities over the different departments, this necessitates evaporation at the rate of 25,700 gallons per day, of the tremendous total of 117 tons of water. Of course this enormous amount of water will not be actually evaporated each hot day, because the outside temperature would not remain 98 degrees for the ten-hour run, but just the same the humidifying apparatus must be of such adequate capacity that whenever the outside temperature is 98 degrees, the humidifying equipment must evaporate water at that rate.

Of course, this is an unusual individual case; and it will be noticed that the heat infiltration is even larger than the mechanical horsepower developed, which is exceptional and caused largely on account of an immense roof area of saw-tooth construction, and a single-story weave shed, where the machinery horsepower per cubic foot

is very low, and naturally the heat radiation from the walls and ceiling is high.

Notice this interesting fact as regards the humidification of different departments of a mill: It is generally understood that the humidities in the weave room and cloth room are higher than those carried in the carding and spinning departments. For instance, spinning-room humidifiers are usually rated around 65 per cent and weave room humidities from 80 per cent up. And yet, on account of the additional machinery heat ordinarily found in the spinning room, it usually requires 40 per cent more evaporative capacity to be installed in the spinning room than is necessary to maintain the higher relative humidity of 85 per cent in the weave room.

The claim has been made that, while in hot weather the evaporation of water in a room will lower the dry-bulb temperature, still the corresponding and necessary increase in the wet-bulb temperature will really make the atmosphere oppressive to the employees than a dry-bulb and low wet-bulb temperature. It is true that the sense of comfort is dependent on several factors, and the wet-bulb temperature is one, but primarily in a manufacturing plant it is the endeavor to maintain atmospheric conditions which are favorable to the manufacture of the textile fiber, and the behavior of the fiber may be taken as an index of its comfort. Experience shows that its regain determines this behavior, and the regain



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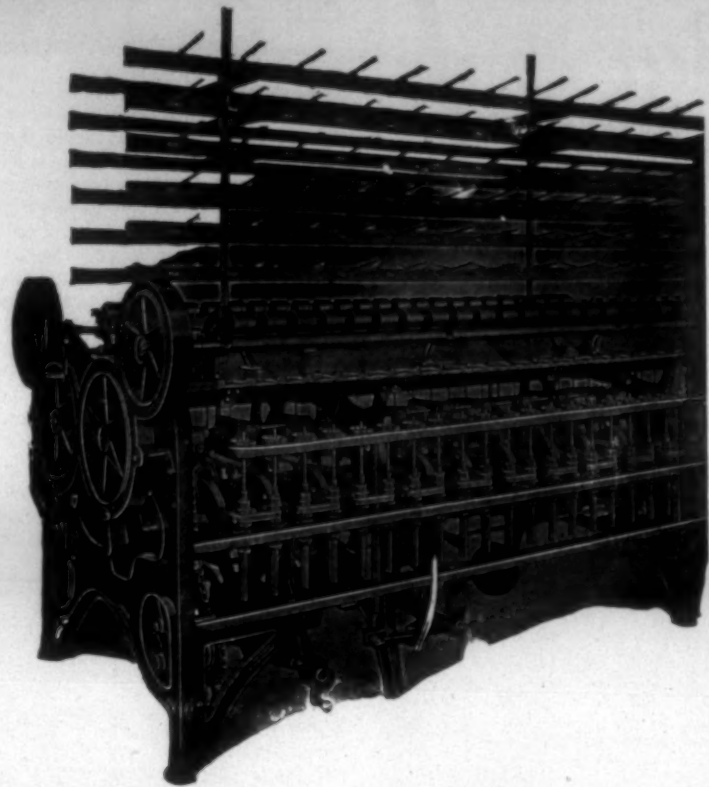
of a textile fiber can be maintained uniformly constant just as easily at 100 degrees or higher as at 75 degrees or lower. Temperature variation, provided the humidity is varied accordingly, within limits, gives excellent uniformity in manufacturing conditions.

The comfort of the employee is of altogether too much importance to be overlooked, but long-continued experiments in several lines of industry besides the textile have demonstrated conclusively that even in heavy-powered rooms temperature and humidity consistent with excellent running work may be maintained by providing sufficient evaporating capacity to allow more or less ventilation through windows, as occasion demands. The facts should be faced that hot spinning rooms require ventilation in the summer time, and B. T. U.'s which are absorbed in the evaporation of moisture in such a room must be removed by ventilation. And then by natural means this humid inside air is replaced with fresh, dry outside air, which is again capable of absorbing more moisture and, in that very process of absorbing moisture, removing more heat.

The old idea of humidifying mills with windows and other openings tightly closed is history in today's practice, and in our experience no mill today is humidified without question of ventilation and providing careful consideration to the excess evaporative capacity to take care of that feature.

The question may be raised as to how the amount of ventilation is determined. Practically, this is a very simple matter. Almost modern humidifying systems are equipped with automatic humidity regulation. This regulation at once determines the degree of ventilation allowable. If the regulator keeps the humidifiers running most of the time, the ventilation should be restricted somewhat—possibly it will only necessitate the closing of a few transoms here and there. On the other hand, if the regulators keep the humidifiers shut off a considerable portion of the time, it is evident that we have an excess humidifying capacity which we might as well use; and more transoms can be opened and more ventilation secured, resulting in a lowering of both the wet and dry-bulb temperatures. And so it is only necessary to casually watch the action of a reliable humidity regulator, which becomes after a little practice so natural that the overseer determines at a glance, almost, whether or not his ventilation is excessive or inadequate.

To sum up, then, the humidification of mills of today is carried out on a strictly engineering basis; scientific, from the standpoint of study of the requirements of the textile fiber; practical, from the standpoint of giving proper consideration to the heat-producing, ventilating, and other vital factors affecting the production and uniform maintenance of adequate moisture in the respective departments and applying it so that the textile fiber behaves best and the conditions making for the comfort of the operative leave little more to be desired.



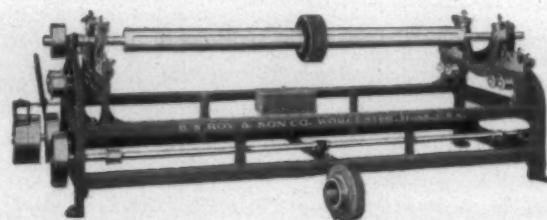
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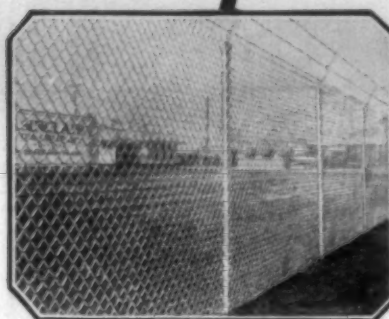
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Mill Solicits "Club" Orders for Towels

The Blair Mills, of Belton, S. C., are circularizing "the houses we buy from" with the suggestion that the office forces club together and send in an order for towels, wash cloths and bath mats. They offer to accept orders for any quantity and will ship direct in one package. The price, offered on Turkish towels range from 90 cents to \$3.85 per dozen; on wash cloths from 35 cents to \$1.95 per dozen; and on bath-mats, \$4.50 and \$5 per dozen. An illustrated folder showing the various patterns and including a perforated order blank accompanies the letter, which reads as follows:

"At this time of the year most people are ready to buy a new supply of towels, wash cloths and bath mats.

"We write this letter to suggest that your office force club together and send us an order to be shipped to your firm in one package, and we can ship you any quantity.

"The attached descriptive sheet gives full information concerning the various numbers and for your information the towels that cost you \$1.85 per dozen are towels that retail for \$3 per dozen."

The letter is signed by Max Rice, treasurer and secretary of the mill.

Knitting Arts Exposition

Upwards of 15,000 trade members of the knitting and allied industries from all sections of the country and Canada will be attracted to the Commercial Museum in Philadelphia with the opening of the 24th annual Knitting Arts Exhibition, Monday April 16th to continue through Friday April 20th.

The exposition held annually in Philadelphia provides an educational feature of marked interest and value in connection with the convention of the National Association of Hosiery and Underwear Manufacturers.

It offers an opportunity for mill executives, purchasing agents, jobbers and retailers to become acquainted with the very latest developments in the industry. The exposition is virtually a vast factory of working exhibits, operated by skilled workmen for the benefit of the trade.

Everything in rayon and silk from the raw product to the manufactured hosiery will be shown, and trade members will be privileged at the coming event to view the various processes which enter into the manufacture of hosiery products.

The convention and exposition provide a connecting link between the jobber and the retailer, contributing in a general way to the advancement of the trade as a whole.

Round table discussions and general sessions for the transaction of business of vital importance to the trade will be held during the convention session which will be presided over by President D. L. Galbraith of Bay City, Mich. The

election of officers of the association will be followed by the annual luncheon Wednesday noon, when about 500 members of the trade will be served.

Innovations in equipment to be displayed at the exposition this year, will include a full fashion hosiery machine, which will be operated at the show for the first time.

Besides the educational value which is attached to the working exhibits shown, the exposition has come to be recognized as the occasion for a general gathering of the trades, when the Commercial Museum becomes a great textile industrial mart for five days.

The exposition is held under the personal direction of Chester I. Campbell, who has been its general manager since its first introduction.

A significant assurance of the greater success of the 1928 exposition is the fact that the number of exhibitors who have signified their intention of exhibiting, is greater than that enrolled in any previous year.

DuPont Rayon Official Believes Price Stability Big Factor in Yarn Market

A close study of market conditions has prompted the DuPont Rayon Company to maintain its present prices on deliveries of rayon contracted for May, June and July consumption, Benjamin M. May, vice-president of the firm, stated in a recent interview. "The rayon market," Mr. May continued "needs stability more than any other factor, and it will be the DuPont Company's policy to maintain that stability as far as it can."

"Our company," said Mr. May, "is tightly sold up to the end of April and has found a shortage in some sizes. I am confident that the weaving and knitting trades will continue to absorb all yarn produced in this country this year.

"As regards the soft spots noted in certain branches of the textile industry, it is true that such conditions have always existed. This is because some trades are more active than others at certain periods of the year, and vice versa."

Mr. May holds, with other authorities, that if all principal consuming markets, underwear, hosiery, cotton and silk goods manufacturers, were to demand rayon in large quantities at one time, it would sharply exceed the ability of the domestic plants to satisfy the demand.

"Such conditions," he added, "have prevailed during short periods in the past, thus opening the door to an augmented distribution of imported rayons.

"The American rayon producers must operate profitably to reinvest in industrial development, and they are putting millions of dollars back into plants and research. We feel that rayon users, in all circumstances, would prefer to have a stable market."

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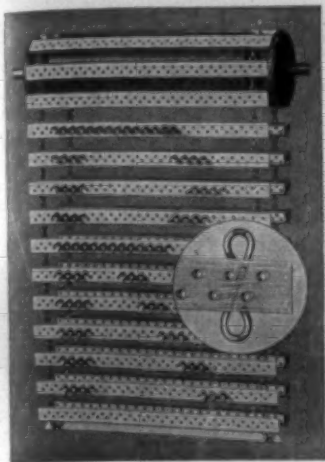
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The J. E. FORD CO., Sole Mfrs
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Taking the Guess Out Of Export Trade

(Continued from Page 10)

by the export manager to see that the averages set can reasonably be expected.

"The sales quotas will be returned to the export manager who will use them to control his salesmen and agents abroad. The charge budget will be passed to the planning department whose duty it is to see that the merchandise is ready for delivery on the specified dates. In our case, we must arrange for weaving or purchasing the grey cloth and for having it finished. Obviously, the charge budget should not be considered the production schedule because a part of the goods may already be made and in inventories. This department who must watch inventories and turnover must prepare its inventory budgets and then work out production schedules for the various mills.

"While these schedules may not represent firm orders, they give advance information of marketing requirements thus enabling the planning department and the mills to work with closer cooperation. Of course, we still have our troubles, but these certainly are minimized by knowing the approximate demand several months in advance.

"From this point the responsibility passes to the production organization. Here the export manager also benefits from his budget work through the fact that the mills are now aware of his requirements and his delivery dates. Working from the production schedules and the standard costs which they have furnished the marketing division, the mills must budget their expense carrying it down by budget centers to the overseers and foremen. The budget theory, you see, applies just as much to them as to the export manager.

"Coming back to the marketing division again, we find another budget in which the export manager is vitally interested. This is his estimate of marketing expense. If he is to know his selling costs and keep these expenses under proper control, he must follow his comparisons each month. It is quite important to get these expense figures in black and white and to study and analyze them. For the work of compiling this budget we make the accountant responsible.

"It may appear that the work of making the budget is far too great to apply to a smaller company. This is not the case, for each person charged with certain duties is enlisted to do his share only. The work of compilation at the end is fairly simple. Where it is essential for a large concern to have the facts, it is even more important to the small one who is limited as to capital and the number of its accounts.

"Budgetary control is merely the co-ordination of thought and action toward a definite goal. It points out the weaknesses to be corrected and emphasizes the strong points to be followed up. For example, engraving costs used to be included in the cost of finishing. As soon, however,

as these costs were budgeted, several of the merchandise managers objected to what they considered exorbitant charges, it was not long thereafter before these costs were being materially reduced."

New Uses for Coton

(Continued from Page 8)

Institute have underwritten an awning design contest which is now under way.

That awnings have a definite value is illustrated by one apartment house whose manager told us that nearly one third of the apartments were empty last summer prior to the installation of awnings, and that when awnings were put up, the vacant apartments were leased within three weeks and there was a waiting list.

The New Uses Section is giving a deal of time and thought to the further increased use of awnings. We are endeavoring to determine what is the best treatment to prevent mildew. We are co-operating with the National Tent and Awning Manufacturers Association in an attempt to work out the best way to create an increased desire for awnings for private homes, apartment houses, hotels and office buildings.

Canvas Shoes.

In 1919, there were three times as many canvas shoes consumed in this country as there were in 1926. Here, the question of style and color enters, and this year the New Uses Section is working to secure the co-operation of certain shoe manufacturers and have them show in their summer lines, canvas shoes making use of fine duck fabrics, not only in white but several other colors in order that the woman may select a shoe of canvas which will harmonize with the balance of her costume. If we only secured for canvas shoes that volume of sales which has been lost in the past seven years, it would mean an additional million and a half yards of cotton duck consumed.

"Good taste is spreading like a prairie fire" and good taste must be reflected in the ever changing markets for practically every commodity.

Great progress has been made by the cotton industry in the past few years in the realization of this fact, so well understood and used by creators of fabrics a thousand years or more ago, namely, the opportunity to create by combination of construction, color and design, cotton fabrics which are both beautiful and useful. Because a material is sold at a low price, does not mean it cannot be beautiful.

It is indeed gratifying to note the increasing interest the mills are taking in creative design. This is a matter which the Institute has been very glad to encourage wherever it is possible to assist those mills which have to consider this highly specialized factor.

The Cotton-Textile Institute welcomes suggestions from you as a group or as individuals and I can promise that every suggestion received from you and your associates will be carefully considered.

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Cotton Goods

New York.—Cotton goods trading continued on a moderately active basis during the week. Inquiry for gray goods was good and sales were fairly large. Prices on wide sheetings, sheets and pillow cases were slightly higher and quotations were very firm. Sales of denims were larger. Bleached goods were generally quiet. Printed goods continued active, with a large volume of small orders reported.

Print cloth business was generally quiet, with prices holding steady. There is a certain amount of specialty trading going on all the time, which totals a fair yardage in some centers. Moderate trading was reported in 64x60s at 7½ cents; some sales of 72x76 at 9½ cents. Spots of 80 squares sold in a limited way at 11 cents; for late delivery three-quarters quoted.

The sales of 60x48s were fair in some centers. Spots sold at 6½ cents, but for anything the other side of April 15, most centers were asking five-eighths. There were reports that some late April goods were available at nine-sixteenths, first hands, but this was not generally possible.

Spot and contract of 27-inch, 64x60, 760 yard sold at 5½ cents, although for prompt most centers wanted five-eighths. The interest in this style continued in some places.

In sheetings there were sales of good makes of 31-inch, 48x48, 5.00 yard at 6½ cents net; one of the less choice makes sold at three-eighths and an off-color quality was being offered at one-quarter. Sales of 36-inch, 40x40, 6.15 yard at 5½ cents net. Quick 36-inch, 48x48, 5.00 yard sold at 7 cents net; some 36-inch, 48x40, 5.50 yard sold at 6½ cents net.

Some 36-inch, 56x60, 4.00 yard were sold at 8½ cents net, with some makes quoted at seven-eighths. Best makes of 3-inch, 48x48, 4.00 yard sold at 7½ cents net. For 36-inch, 48x44, 3.25 yard, 9½ cents net was paid. There were additional sales of 40-inch, 44x40, 4.25 yard at 7½ cents net; spots of 40-inch, 48x44, 3.75 yard seemed tighter, with most centers now asking 8½ cents net, and sales reported at that price for nearby contract. Sales of 40-inch, 48x48, 2.85 yard at 10½ cents net; some 36-inch 2.85 yard, sold at 10½ and 10½ net.

Fair inquiry for tire fabric and

chafers and lenos came on the market. Each day is said to be bringing fabric mills a little business which some of them have been unable to work on because of the satisfactory sold-ahead condition they find themselves in.

The improvement in the demand for cotton duck has not been sufficient to bring about a stronger price position for mills. Buyers continue to be able to obtain yardage at price levels which have lasted since before mills determined to drastically curtail and have since cut down their inventories.

More activity was noted in carded broadcloths, proportionately than in other print cloth yarn goods. Here too, however, the interest was not general. There were some good sales of 90x60 reported put through at 10½ cents for delivery June and July. May and June delivery of 100x60 sold at 11 cents. Other broadcloths appeared unchanged.

Buyers are finding little change in the combed broadcloth situation, the 128x68s and 144x76s selling to a few buyers in larger than average quantities.

In several divisions of textiles the absence of volume business from those who are normally expected to assist mills in maintaining their output upon a fair basis has led many manufacturers to restrict their output unduly, least buyers may be able to come forward and place bargain values on stocks. It is believed that production at the presents time, taken as a whole, is running below a fair average ratio of consumption, but it is believed that traders are unwilling to assume normal business risks and they expect manufacturers to be forced into selling distressed merchandise.

Cotton goods prices were as follows:

Print cloths, 28-in., 64x64s..	6
Print cloths, 28-in., 64x60s..	5½
Print cloths, 27-in., 64x60s..	5½
Gray g'ds, 38½-in., 64x64s..	8½
Gray goods, 39-in., 68x72s..	8½
Gray goods, 39-in., 80x80s..	10½
Dress gingham	16½a18½
Brown sh'tgs, 4-yd., 56x60s..	10
Brown sheetnigs, stand.	12½
Tickings, 8 oz.....	21a22½
Denims	18
Staple gingham, 27-in.....	10½
Kid finished cambrics	8½a 9½
Standard prints	9
Brown sheetings, 3-yard	11½

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The Yarn Market

Philadelphia, Pa.—Further improvement in the yarn markets was noted last week, although it did not reach the point where buyers were willing to place very large orders. The bulk of the business was on a hand to mouth basis, but the small sales came more frequently and the price situation was better. The higher cotton markets helped spinners keep prices very firm with all counts showing an advance. Inquiry was generally good throughout the week and was taken as an indication that yarn consumers need supplies but are not yet willing to pay spinners prices except for small lots.

Carded yarn production remains on about the same basis that has been in effect for some weeks past. The best information available shows that most mills have some business on hand and that they are not carrying large stocks. It is believed too, that yarn consumers have very light stocks on hand and an increase in their orders should result in a stronger yarn demand.

Almost all spinners have raised their ideas of prices, and this is evidenced by the fact that several offers made by local trade factors for both combed and carded yarns at prices quoted a week or so ago remain unanswered. One particular mill which quoted and subsequently sold a limited poundage of 60s two-ply warp twist combed yarn at 63 cents 10 days ago, now asks 65 cents and has actually taken on business from the same customer at the new price.

Regardless of the amount of strength to any market there are always a few weak spots to be found and with the present yarn market only moderately firm it goes necessarily that some soft spots are noticeable here and there throughout the list. However, it appears from conversations among the dealers that the degree of weakness is by far less noticeable than 10 days ago.

Southern Single Skeins.	
4-8s	29 1/4
10s	30
14s	30 1/2
16s	31 1/2
20s	32 1/2
24s	33 1/2
26s	35 1/2
30s	36 1/2
40s	38
Southern Two-ply Skeins	
4s-8s	30 1/2
10s	31
12s	31 1/2
14s	32
16s	32 1/2
20s	35
24s	36 1/2
26s	37
30s	38
40s	47
50s	56
Southern Single Warps	
4s-8s	30
10s	31 1/2
12s	32

14s	33
16s	33 1/2
20s	34 1/2
30s	40
40s	46

Southern Two-ply Warps.	
8s	32
10s	32 1/2
12s	33
14s	33
16s	34
20s	35
24s	37
26s	38
30s	39

Southern Carded Yarn on Cones.	
8s	28 1/2
10s	30
12s	30 1/2
14s	31
16s	31 1/2
20s	32
22s	33 1/2
24s	34
26s	35
30s	38 1/2
40s	48

Southern Two-ply Combed Peeler.	
8s	44
20s	46
30s	50
36s	51 1/2
38s	52 1/2
40s	53
50s	62
60s	66
70s	80
80s	85

Southern Combed Peeler Single Yarn on Cones.	
10s	36
12s	38
14s	39
16s	40
18s	41
20s	41 1/2
22s	41 1/2
24s	42
26s	42 1/2
28s	43 1/2
30s	47
36s	51
38s	53
40s	60
50s	67
60s	82
70s	88
80s	88

Two-ply Mercerized Yarns.	
20s	50
30s	62
40s	68
50s	76
60s	85
70s	97
80s	1.09

Spun Silk Research Committee Formed

An organization called the "Spun Silk Research Committee" has been created by the following producers of spun silk yarns: American Spinning Co., Champlain Silk Mills, Cheney Bros., Corticelli Silk Co., National Spun Silk Co., New England Spun Silk Corporation.

The headquarters of the newly established committee are at 386 Fourth avenue. J. Ralph Corbett has been appointed executive director and M. A. North, associate director of the committee's activities.

O. D. Frost, president of the Champlain Silk Mills and Ivan A. Strohl, head of the New England Spun Silk Corporation are acting for the six members of the group as a committee cooperating with the newly appointed executive director. The Spun Silk Research Committee will conduct a complete survey of textile conditions as they relate to the uses of spun silk yarns in fabrics and garments.

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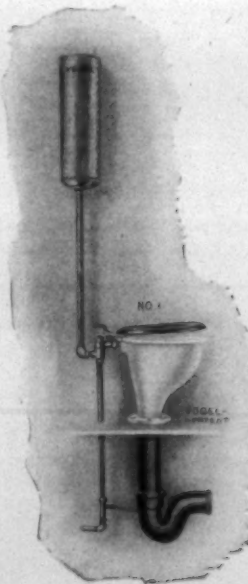
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Wanted

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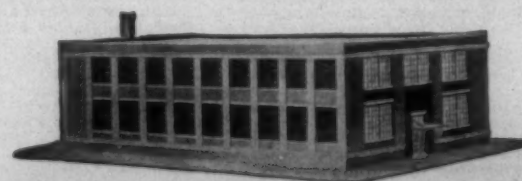
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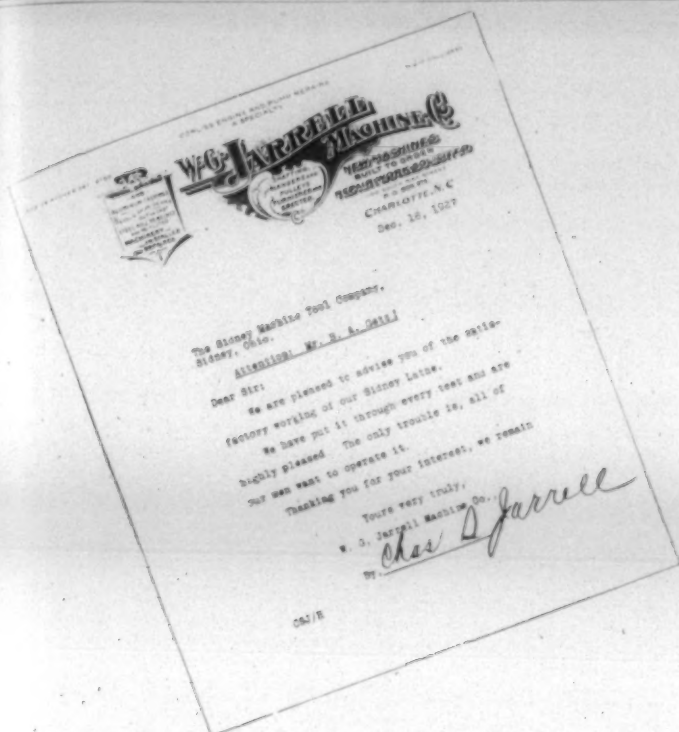
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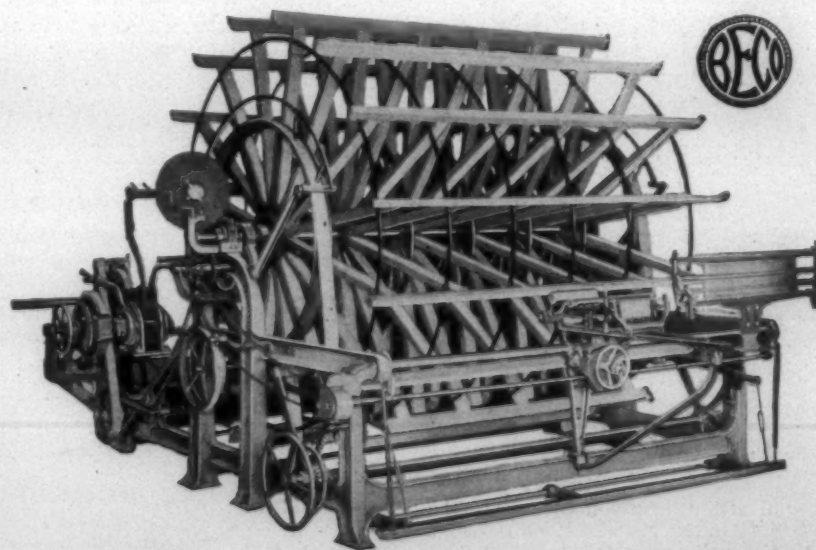
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HOME SECTION SOUTHERN TEXTILE BULLETIN

Edited by "Becky Ann" (Mrs. Ethel Thomas)

CHARLOTTE, N. C., APRIL 5, 1928.

News of the Mill Villages

HARTWELL, GA.

Hartwell Mills

Our plant is running fifty-five hours at present and we hope to keep it up.

Most all our people seem to be very much interested in gardening and taking advantage of the beautiful spring days. Superintendent A. F. Garrison has improved the looks of our sidewalks quite a bit by putting out some pretty shade trees.

Mr. and Mrs. W. P. Norman were recent visitors to Easley, S. C., as the guests of their daughter Mr. and Mrs. Earnest Baker.

We are glad to say that Hazel, little daughter of Mr. and Mrs. J. T. Banister, is improving nicely after being seriously sick with pneumonia.

Miss Willie Claire Davidson attended the B. Y. P. U. convention held in Elberton, Ga., last week having gone as a delegate from the First Baptist church of Hartwell.

Mrs. Sidney Burton has returned from an extended visit to her parents in Anderson, S. C.

Ralph, son of Mr. and Mrs. Archie Sanders is recovering nicely after being shut in for several days with measles, we are glad to state.

Mr. and Mrs. W. P. Davidson of Greenville, S. C., and Mrs. Idell Meredith of Anderson, S. C., were the guests of relatives in our community last week-end.

A GEORGIA PEACH.

ELBERTON, GA.

Elberton Cotton Mills.

Mr. A. S. Vaughan, who had lived here more than 12 years, died Saturday morning, March 24th. He had been in declining health for three or four years, but we all thought he was going to get well until a day before he died.

Rev. Haskell McCurley and wife, filled their regular appointment here

last Saturday night. Mrs. McCurley preached a real good sermon; theme, "God is love."

Mr. John Beasley, wife and daughter, from Calhoun Falls, S. C., attended preaching here Saturday night.

Mr. E. J. Boswell and family, from White Hall, Ga., were visitors here Saturday and Sunday. We are always glad to see them.

Our cottage singing is going right along, getting better every time.

Mr. H. L. Joy, our Superintendent, is sporting a fine new Buick.

The writer never sees much of our night Superintendent, Mr. Buddy Sharpton; he sleeps in day time and is on the job at night.

B. W. J.

CRAWFORD, GA.

Crawford Cotton Mill.

We have a nice little mill here, running full time, day and night, and plenty of help.

We are all proud of our superintendent and overseers; Mr. George Archer is superintendent assisted by Mr. J. M. Creekmore; Mr. E. P. Dueberry, is carder; Mr. Grady Davis, spinner; Mr. C. H. Allison, weaver.

We all enjoy the HOME SECTION and especially the story, "Truth Crushed to Earth." Aunt Becky we heard about you being in Athens, so close to us (only 14 miles) and wish you had come, or would come yet, to see us.

We have a fine Sunday school and a hearty welcome for everybody. We have a nice church, with Rev. J. W. Culbertson, pastor.

Rush the Home Section along, we can hardly wait for it each week.

Another Georgia Cracker.

WAXHAW, N. C.

Mr. H. L. Plattenburger carried his little daughter, Mable, to a Charlotte hospital for treatment.

Our Sunday school is preparing

for a nice time, Easter.

Mrs. Sarah Robinson, died at the home of her son-in-law, Mr. Roy Ballard, after an extended illness. She was a good woman, and death had no terrors for her.

Mr. and Mrs. Charlie Ivery recently visited in the home of Mr. Grover Brown.

Little Ruby Mullis has been very sick but is much improved.

Prayer service at our church on Sundays nights is well attended, and we feel that much good is being accomplished.

Mrs. Minnie Bowden spent Sunday with Mrs. H. L. Plattenburger.

Mr. Lex Pressley and family spent Saturday night in Monroe.

EULA MULLIS.

ATCO, GA.

American Textile Company

Dear Aunt Becky:

We all enjoy reading the Home Section. You don't have a correspondent for your paper here, do you. (No,—but we want you to take that position.—Aunt Becky.)

We have a pretty mill village. Atco has the reputation of being the cleanest mill town in the South,—something that makes us feel mighty proud.

Aunt Becky, we were sorry that you became ill while you were here, before you could see us all upstairs. Those who met you loved you on sight, and I know we would have loved you too.

Our Sunday school is improving now, and we are looking forward to a big Easter egg hunt.

I have read five of your books and hope to read others. We love the story in HOME SECTION, and wait anxiously for it each week.

A. READER.

(We are glad to have you letter, Aunt Becky.)

Becky Ann's Own Page

RANDLEMAN—HIGH POINT— THOMASVILLE

Mill People the Best People, and Their Best Friends are Mill Officials.

Our paper is too small for us to tell all about the nice things we've seen, and the splendid reception tendered us everywhere by the mill officials, superintendents and overseers.

Randleman, where Mr. J. W. McElhannon is superintendent of Deep River Mills, has such an interesting history that it would take our whole paper to do it justice. One man, a Mr. Ferguson, has been working there 51 years! In the early days of that mill, there was a Company Store which sold everything used in those days, even whiskey—and we have seen the ledger accounts, showing that many families spent more for snuff, tobacco and whiskey than for groceries. Once, in those days, a man at this place got into trouble and paid his fine with whiskey! But you ought to see the NEW Randleman, and Deep River Mills of today; you ought to meet some of those splendid and highly intelligent operatives, and get a vision of what the textile industry has meant for them.

At High Point, there were so many improvements that we felt lost. In the days of Mill News, we pulled through mud to get around to the various mills. Not so now! Streets have been improved or paved, so that traveling over them is a joy.

At Highland Cotton Mills, we got lost. Didn't know where we had gotten to. The little mill we knew had multiplied like a hill of potatoes, and other units had grown up over a large territory. We couldn't believe that this was Highland, until we found Superintendent G. R. Ward, who showed us all over those pretty, clean and modern plants, and explained their relationship to Mill No. 1.

We lost our notes, and the names of overseers and second hands, and wish to ask each correspondent to a complete line-up of the mill where she works.

At Pickett Cotton Mill, Superintendent J. H. McKinnon and all his overseers were especially cordial, and their welcome made our heart thrill with pleasure. We'd rather have the confidence and friendship of our Southern textile leaders, than to be the wife of a president of the United States,—and that's the honest truth. Mill people are the best people on earth,—kind, considerate and

never a bit selfish nor "high-muckety-muck."

When good fortune comes to one, all rejoice; also, when sorrow comes, all are ready with real help and sympathy. Mill people will divide their last dime with a needy neighbor,—will sit up at night with the sick, and get off from their work, if necessary, to render aid.

Tell us who else will do it? In the big cities,—people seldom know their next door neighbors. Apartment houses hold several families, who never see or "meet" each other, and don't wish to.

Mill people,—good, loyal and faithful workers,—all know that if they get in "too deep water" their mill officials will not let them sink. If there are hospital bills or doctor bills too large to be met promptly, the good Southern mill official will advance the money to a loyal worker, and let him pay a small amount weekly, till the debt is cleared. Tell me what other class of working people have such friends in time of trouble?

Are we about to get off from our subject of "Visiting among the mills?" No. Visiting among the mills brings to light so many good qualities of both capital and labor, that we could never tire shouting their praises to the world.

A pessimist—or any old grouch who has soured on himself—should spend a few days in a good up-to-date mill town in the South, go to church in a mill village and let good old time religion clean him up.

At High Point Yarn Mill, also superintended by Mr. McKinnon of the Pickett Cotton Mills,—we found everybody interested in reading, and got more subscribers there than we have at some mills much larger. We met so many nice people there and had such a lovely visit. Every old subscriber renewed, and we added several new ones.

High Point, is a truly lovely town, and there are no friendlier people anywhere on earth than can be found in this city.

At Thomasville, we visited the Amazon Mill, and was sorry to find our good friend, Superintendent O. L. Wagstaff out sick. But we met the genial secretary, D. A. Long, Jr., and treasurer R. C. Rapp. We added several new names to our subscription list, and feel deeply indebted to the nice overseers there, for their courteous assistance.

Amazon Mill, has increased in size and made so many improvements that it would be impossible to tell it all. Everything in and around the mill is attractively clean. Flower yards and gardens, get especial at-

tention, and those who excel in growing them, get rewarded.

Next week, we will give a short sketch of a trip from Charlotte to Marion.

AUNT BECKY.

SELMA, ALA.

Sunset Village News.

We hope this week-end will be fair and warm for the "Lucky Girls" are planning a big time. Just think of a picnic at the new Selma Park with lots of good things to eat. Aunt Becky we wish you could be with us. (So do I.—Aunt Becky.)

The girls met Tuesday night, March 20th, with Miss Ibbie Mott. She gave us all a delightful surprise—hot chocolate and cake,—and we surely did enjoy it.

Wednesday night, March 28th, we met with Mrs. Hollis Davis and had another surprise, lemonade and nice sugar wafers. We had the pleasure of adding a new member to our roll,—Mrs. J. P. Carr, who has recently moved here from Montgomery. We extend her a hearty welcome.

Little Marcella, daughter of Mr. and Mrs. J. P. Carr has been ill, but is much better now.

Mrs. Hollis Davis, Mrs. I. B. Powell, Misses Sussie Suttles and Lucille Powell, motored to Chapman, Ala., the past week-end.

My! How the Sunday School continues to grow. We had one hundred and thirty present Sunday, forty-eight of which were men. They say they are going to sixty.

There will be weekly choir practice at the church each Friday night.

We are glad to see Mr. G. W. Booker back at work after a week's illness.

Misses Alma Suttles, Clara Hudson, and Lois Hall spent Friday night with Mrs. E. Q. Autry.

Mr. and Mrs. J. W. Stone are receiving congratulations upon the birth of a daughter on March 19th.

I enjoyed Ruby Ledbetter's letter very much. Hope she and Lourine Crabtree will pay us a visit this summer for we have had such nice times together.

Mr. and Mrs. Sam Suttles visited Mr. and Mrs. Will Suttles Sunday.

Mr. and Mrs. G. H. Tisdale spent Sunday with Mr. and Mrs. M. F. Slaughter.

Mrs. T. A. Murray is improving after a few days illness. There are no new cases of measles at this writing.

Mr. P. C. Buckelew visited Mr. and Mrs. R. W. Rogers Sunday.

BLUE BIRD.

MONROE, N. C.

Monroe Mills Co.

The Monroe Mills Company began operating in 1919, known then as Bearskin Mills Company. In 1924 was changed to the present name. Mr. C. W. Johnston is president. Mr. R. H. Johnston, secretary and treasurer and general manager. W. M. Alexander is cashier. R. M. Painter, superintendent; W. L. Thrift, day carder, assisted by Dewey Quick. J. A. Craig, day spinner and twister, assisted by Lloyd Pressley in winding and by H. T. Montgomery in twisting department by Luther Helms. Night line: Carder, Thomas Riley, assisted by J. R. Riley; spinning and twisting, Boyce Mullis, assisted by Carl Williams; Hazel Craig, master mechanic.

Our mill is running full time with plenty of good help.

We have had much sickness in our village the past few weeks.

The North Monroe ball club met yesterday for the first time and will soon be looking up games with other mill teams.

Would be glad to hear again from "Georgia Cracker," of Fries, Va. I have known him for many years, but haven't seen him in 24 years, back in our old home town, Trion, Ga. Write again "E. A."

Would like also to read again a letter from A. G. E., Summerville, Ga.

Let's all pledge our best efforts to help make HOME SECTION one among the largest papers in the textile field. Remember "plenty of good news will drive away the blues."

SMILE.

ERLANGER NEWS

(By Mrs. R. H. Clayton)

Mrs. W. R. Nesbit gave a party Saturday afternoon at her home on Winston Road for her little daughter, Marilyn Wright, in celebration of her fourth birthday. A color scheme of green and yellow was used in the decorations and favors. The little guests were: Margaret Wilson, Mary Guin, Maurine Conrad, Roxie Carswell, Audrey and Rachel Simeron and Sara, Dorothy and Desaree Wilson.

Mr. and Mrs. W. M. Glass and family have moved back to Erlanger from Alabama. We are glad to have them back.

Mr. Ralph Barton, who was a member of the basketball club, has returned to his home in Greenville, S. C.

Mrs. W. H. Brown is suffering from a cold, at her home on Mill Street.

Mr. and Mrs. L. Bishop, of Greenville, S. C., spent the week here with Mr. Bishop's parents.

Mr. H. L. Banks, of the Home Mercantile Co., is ill with flu at his home in Lexington.

Rev. and Mrs. A. S. Raper and Misses Callie and Ollie Miller went to Salisbury Tuesday evening to attend the Methodist Sunday school conference.

Mr. and Mrs. R. E. Williams and family and Mr. and Mrs. J. M. Jones and family, of Concord, were guests of Mr. and Mrs. Henly, of Mill Street Sunday.

O. A. Petrea, Jr., is confined to his home with measles.

Mildred Minter, little daughter of Mr. and Mrs. J. H. Minter, is recovering from an attack of measles.

Organize for Baseball.

A baseball club has been organized for the coming season. Mr. L. A. Carswell was elected manager and Mr. B. Martin, business manager. They will be ready to schedule games in about three weeks, it is stated. Erlanger always has a good team and we hope to have a good one this season.

THOMASVILLE, N. C.

Amazon Mill News

Miss Juanita Welch has been very ill for some time, we are sorry to note.

Miss pearl Mullis is spending the week in Charlotte with a friend.

Mrs. W. G. Hegler and mother, visited in High Point, Sunday afternoon.

Mr. Joe Bryant has been conducting a singing class at the South Side Baptist church for two weeks. The classes have been very well attended.

Mr. Luther Mullis, overseer of spinning at night, was called to Charlotte Monday on account of the illness of his father.

This is the annual clean up week, as set by the Central Civic Committee, headed by Dr. H. W. Roier. The committee hopes to have the full cooperation of every citizen of the city in the effort to make the city more beautiful, healthier, and cleaner. Each person is asked to look after his or her own premises and see that all the rubbish, cans, etc., are gathered and put where it can be hauled away.

KERSHAW, S. C.

Kershaw Mill News.

Saturday afternoon a group of our young girls hiked to Heath Springs, S. C., a distance of about seven miles and had lunch at the Mindle Spring at that place. It was a joyful occasion for all, it being the first event of spring. The group consisted of Misses Viola Turner, Geneva Dabney, Frohn Ferguson, Mozelle Crolley, Zelma, Wilma, Elsie Knight, and Annie Lee Shaw.

Mr. Harold Ferguson, a young boy of our community, has been on the sick list for the last four weeks, but we are glad to know that he is improving.

Mr. J. L. Sweatt of Hartsville, S. C., was visiting here Saturday.

Mr. R. H. Turner, overseer of weaving here, was called to the bedside of his brother-in-law, Mr. Moore of Buffalo, S. C., who passed away this week.

This company is having another deep well drilled here.

Mr. and Mrs. M. A. Crolley and Mr. and Mrs. E. B. Chandler motored to Rock Hill Tuesday; Mrs. M. A. Crolley will stay at the Rock Hill hospital a few days for treatment; we hope she will soon be back home with her family.

Born to Mr. and Mrs. W. J. Horton, a son and his name is W. J., Jr.

Mr. S. B. Faile had a ride in an airplane the other day. He said "it was cold up there" but he did not know much about it for his heart was too close to his mouth, and he had a hard time keeping it down.

Mr. Chalmers Reeves went to the Baptist hospital at Columbia, S. C., this week to undergo an operation for appendicitis. We learn that the operation was successful, and that he is improving.

A READER.

GRANITEVILLE, S. C.

Gregg Dyeing and Finishing Co.

We are having spring weather now, and the birds are singing their sweet songs. We will all welcome "good old summer time."

We have had several light cases of smallpox, but everybody is on the mend.

Uncle Jimmie Carpenter, 80-year-old Confederate veteran, and a mighty good man, has answered the last roll-call.

"Aunt Becky," we hope you can visit us this summer, and see the nice mills down here.

We have a good ball team, which we hope will prove the very best amateur team in the State.

I truly enjoy the HOME SECTION and can hardly wait for it to come each week.

What has become of the correspondent at Red-Bank? That is close to my old home town, and I enjoyed reading the news from there.

A READER.

HUNTSVILLE, ALA.

Merrimac Mill Village News.

We are glad to have Mrs. G. W. Lehman back in Sunday school, after a visit in Florida and Arkansas.

The Boy Scouts had their regular meeting last Tuesday night, and some fine music and good talks made everybody glad to be there.

Had a good show in the school house, last Saturday night, after which, Sgt. Sammie Baker and his brother had three rounds of snappy boxing, and gave instructions on how to reduce or put on weight.

Mr. Ward Thorn, our treasurer, was here from Boston last week; he always brings sunshine and happiness with him, and is a general favorite.

Fiddlers Contest.

Our "Fiddlers Contest" held at the J. J. Bradley school auditorium, March 26th, was a grand success; about 900 people attended. William Jackson, of Merrimac, who played "The Old Hen Cackled," and "Billy in the Low Ground," won first prize. Mrs. Emma Crabtree won second prize, on "Arkansas Traveler." The first prize for best string band was won by the McCormack Band of South Pittsburg, the prizes being \$10.50 each.

On Friday night, at the contest in the Court House, Mrs. Emma Crabtree won first prize, and William Jackson won first prize in the contest at Gurley, on Friday night.

Merrimac is proud of our musical crowd, and when a gathering of this kind is announced, there is always a rush for seats.

Learning More.

MILLEN, GA.

Morgan Cotton Mills of Georgia, Inc.

Measles are here at last, and several families down with them.

Mr. Grover Ammons had a bad accident Monday, when a gas gauge exploded, knocking out all his front teeth and breaking his jaw bone in three places. He is in the hospital.

Mr. W. B. Thrower, of Gastonia, has become night overseer of weaving, here. We are installing six more automatic looms.

Mr. Angus Babb has a new Chevrolet.

Messrs. W. F. Wright and W. C. Lane, spent last week-end in Augusta, and Mr. Lane bought a car while there.

Mr. L. H. Wingate, of Shannon, Ga., was a visitor here last week.

Mr. Wright's daughter, Mrs. Graham, of Oheraw, S. C., is spending a few days here.

MRS. J. FELTON.

LAURENS, S. C.

Laurens Cotton Mills.

Dear Becky Ann:

I have been reading your paper and I read in so many of the articles of the fine mill towns, and of their fine men who are at the head of their villages and industries. So I

want to inform you that OUR village is the best in South Carolina! Our homes are beautiful bungalows and have every modern convenience. The streets and all premises are kept nice and clean.

Mr. Montgomery, our outside boss, is kind and courteous to everyone. He is doing everything to make our people happy and contented. Mr. M. L. Smith is our general manager, and Mr. Moore is superintendent; and I am sure your other correspondents haven't any "more," and I doubt if they have as much to brag about as we have.

We have had a few cases of measles, whopping cough and flu, but none proved fatal. If our people do not enjoy the best of health this spring and summer it surely can't be the fault of our men who are in authority, because our village is kept in a fine sanitary condition.

Our community was made sad recently as the result of an accident that befell Mrs. Georgia Rutledge Pitts, wife of W. B. Pitts of our town, when she had her right foot cut off by a locomotive engine on the C. N. & L Railroad. The limb had to be amputated near the knee. All her friends wish for her a speedy recovery.

The members of the Methodist church are happy over the prospects of having a new church house, in the near future, their church having been burned some years ago; since then they have been worshipping in the school house.

Our village has another fine asset which is our community nurse, and we all appreciate her; Miss Hayne has given use several years of faithful service, and we hope to have her many more years yet. She has been a good "angel of mercy" and love to many sick and sad people. May she have many rich rewards for faithful service.

Now, Becky Ann, suppose you come down some time to our town and we will give you the privilege of checking up on what we have told you.

One Who Loves Her Home Town.

(Have been there and you haven't told half of your blessings. That is a fine mill and village in every way. Aunt Becky.)

MOBILE, ALA.

Mobile Cotton Mills

We have a very nice mill with 20,000 spindles and 380 looms making 5.10 yard sheetings. To have a good mill there must be good overseers and I don't think "our bunch" could be beat.

Mr. J. A. R. Ayer is our superintendent. He has been here for a number of years and has made friends as well as improvements

since he came here. Mr. Fred Hagan is assistant superintendent.

Mr. Luther Atherton, formerly of Prattville, Ala., is overseer of the carding department. Mr. Atherton has only been with us a short while but we feel the effects of his good work already. Mr. C. E. Beale is night carder.

Mr. Cliff Atherton, formerly of Acworth, Ga., is overseer of spinning with Mr. W. T. Cowart at night.

Mr. Euell Crabtree oversees the spooling, warping and slashing with Mr. C. M. Lane at night.

Mr. H. H. Graddick is overseer of the weaving department with Mr. J. Hurst at night.

Woodie Brantley has been promoted to cloth room overseer and from all accounts he's certainly the man for that job.

Joe Stegnar is master mechanic and electrician, and Mr. M. Wiggins is yard foreman. Hugh King is local accountant.

Our village is very pretty and the most sanitary place I've seen lately. Our lights and water are free.

We are "betting" on a good ball club this season. Mr. Hugh King will be business manager. Cliff Atherton will be pitcher as well as field manager.

Aunt Becky when you think the rest of the world has gone "dry," come down to see us and we will give you plenty of water to drink if nothing else, for Mobile certainly has her share of water and plenty of fish for everybody.

GENE.

ROSEMARY, N. C.

Death of Mrs. N. I. Pruden

The Roanoke Rapids high school boys played the Washington, N. C. high school boys, in a game of baseball and beat them by a score of 18 to 8.

We are very sorry to report the death of Mrs. N. I. Pruden who died Monday afternoon at about 5:30.

We are glad to say that Mr. J. E. Collins has returned home from the hospital where he has been for an operation.

Mr. W. J. Norwood, who is of the Rosemary Manufacturing Company, is candidate for House of Representatives.

Miss Annie Lowter who is a student at N. C. C. W. is spending the spring holidays with her parents.

Mr. George Lampley of Hopewell, Va., attended the funeral of Mrs. N. I. Pruden.

The Y. W. A., of the Rosemary Baptist church held a most interesting meeting at the home of Miss Minnie Johnson. After a most enthusiastic program, a social hour was enjoyed.

ROSEBUD

Truth Crushed To Earth

By

MRS. ETHEL THOMAS

(Continued from Last Week)

"But John, you are so wonderful—I can't help wanting to see you where you would be more appreciated. Your masterful style would capture Broadway; and aren't souls in the social realm, worth just as much? Couldn't almost any one preach to your people? If I'll arrange it, will you go and preach in New York, just once?"

No, no, Marjorie."

"Which is a polite way of saying, 'get thee behind me, Satan,' I suppose," said Marjorie.

"Don't flatter yourself"—laughed John—"I'm not even tempted."

"I wonder—" Marjorie sighed and paused.

"Wonder what?" asked John, leaving his chair for a seat in the swing with Marjorie.

"Wonder if you are one of those wonderful creatures who are—what is it? sanctified and holy,—beyond the power of the devil,—safe from every temptation?" And she looked up at him with wide serious, half frightened eyes.

"Oh, Marjorie, sometimes I feel like shaking you!"

"I wish you would! Why don't you, John?" leaning against him 'till he had a faint breath of the delicate, exquisitely perfumed hair. John's muscles quivered as he looked down upon her lovely face, and dainty, shapely, trembling hands that fluttered nervously in her lap. She continued softly:

"Yes, I'd love for you to shake me—treat me rough, cave-man style! John, why don't you like me?"

"Marjorie!" there was protest, appeal, yearning, and warning in the exclamation.

"I know, I'm a sinner—I'd like to be good,—really John, I'd give my life to believe as you do, Won't you teach me, John?" Her trembling hand found his; "Lead me to the light, John—I'll follow you anywhere. Maybe that is why, after all, that I came South. Maybe God intended it. Certainly no other preacher has ever impressed me."

"Marjorie! I believe you really are in earnest at last,—thank God!" and his hand closed over hers in a firm warm clasp. "When I know that you are a penitent sinner, willing to pray for yourself—then I can go to God with confidence—sure that He will hear and answer."

John could not see the triumphant twinkle in Marjorie's eyes, nor the amused smile that played for a moment about her lips, as she sat with head bent and studied the toe of her pretty slippers.

Presently Bony announced that supper was ready, and proudly escorted his guests to the dining room, warm with fumes, from the kitchen stove, where Mrs. Ransome, perspiring and happy, pointed out seats to her guests.

They're All There

From the doffer boys, the spinners, the weavers on up to the overseers, superintendents and even the mill owners, they're all there in the

Becky Ann Books

Aunt Becky Ann (Mrs. Ethel Thomas) writes of Southern mill life as no other author has ever done. Her thrilling romances throb with life and love in the mill villages, grip your interest and hold it to the last line.

Read

Only a Factory Boy

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The Better Way

A Man Without a Friend

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Charlotte, N. C.

Nobodys Business

By Gee McGee.

GLOOM MAKERS

This is an age of uncertainty. Smart folks seem to know more about the distant past than they do about the present. A scientist can stumble around a few minutes in Mongolia and kick over a clod and find a tooth that was worn by a *Septi-migentum* during the summer of 888,967,777 B. C. Why, the bird can take that tooth and put it under a microscope and decide exactly how many hairs that varmint had on his tail, how long his nose was, what he ate for dinner the day before he died, and the color of his eyes.

Why, we common people stay torn all to pieces all the time. Some college professor recently came forward and informed us that Mary's little lamb was all a myth, and that Mary had no lamb, and the lamb had no Mary, and there wassent any school house, and the children didn't laugh and shout to see the lamb at school, and the teacher never turned the lamb out, and its fleece was not as white as snow, and everywhere Mary went the lamb was not sure to go, because Mary didn't go anywhere, and therefore the lamb could not follow her. I am so grieved over this thing. I'm sure Mary must be awfully disappointed to become an outcast at this late day, and so's her little lamb.

Then, another Solomon arises and gives George Washington a hiff or two. He swears that George never cut down any cherry tree, and that he never had a hatchet in his life, and he told lies just like everybody else, and that he was not the father of his country; he had no children at all, nor did his wife, and he further denies that George ever threw a dollar across the Potomac river, and that if he did, he had a slave over there to catch it, and that he got drunk ansoforth. Next thing you know somebody will tell us that Old Mother Hubbard never had any cupboard or dog either, as for that matter.

But I stood everything all right till Dr. Givum Ell, M.D., D.D., Ph.D., R. F. D., P. D. G., of the University of New York up and says that there was really no such person as "Little Annie Rooney." He's simply mistaken. I know there was a little Annie Rooney because I have read about her and cried about her and could almost see her while she was playing in the meadow ansoforth. It don't do anybody any good to have somebody all the time distroying ideas and ideals that have become "set" in a fellow's mind. I don't think I'll ever take any more stock in what scientists and archeologists and criminologists and geologists say. I wish they'd tend to their own business and let our Annie Rooney's and Nellie Grey's and Sewanee Rivers alone.

Uncle Joe saw in the newspaper where a fellow found a big pearl in some oysters he was eating at the Last Chance cafe, so he began eating oysters there but instead of finding a pearl in his oysters, he broke 3 gold teeth out the second meal he took there on a buck-shut that had been cooked with his stew.

"You take this here seat, Miss Loring," to Marjorie, who found herself facing John and looking down into a flowered plate, odd from all the others, and under it a white center-piece edged with turkey-red crochet trimming—obviously placed there as a special honor!

Virginia's cheeks were red as roses, and her eyes flashed a wild, tragic appeal to Marjorie to "be appreciative."

"Return thanks, Brother Ergle," came the soft request of Bony Ransome, and John prayed for humility, sincerity, honesty, and the peace which passeth all understanding to abide in each and every heart,—thanked God for the gift of His Son, for food and for health and asked especial blessing on the Christian home, whose doors and hearts were opened for the guests at supper.

Ere he said "Amen!" Marjorie had gotten herself in hand, determined that John should find her capable of appreciating his friends to the fullest. She praised the stew, the pickles, the butter, and hot muffins, laughed and talked interestingly, told a laughable joke or two, and completely captivated Mr. and Mrs. Bony.

She examined and admired Jimmie's furniture—made of dry goods boxes, some painted, some covered with cretonne, and heard all about how "Mr. John" started him, and how the "welfare lady" gave him lessons, and how every hour out of school was devoted to making things which the neighbors bought, and he had started a bank account and maybe some day would go to college.

And they were happy! Marjorie could see that with half an eye. She marveled. A great shaft of pain stabbed her as she thought of her own life, full to overflowing with temporal blessings—wealth lavishly spent for vain and foolish pleasures that burst like a bubble in one's grasp, leaving nothing but emptiness and regrets.

"Your busy, happy life makes me ashamed of idleness," said Marjorie to Mrs. Ransome. "I've enjoyed my visit more than I can express."

"Well, I do say! Now Pa, ain't that sweet of her? I'll be thirty-nine years old tomorrow, and I never had no sweeter lady to visit me, I know!"

"Thirty-nine! You don't look that old. And, oh, would you accept a birthday present from me?"

"Bless your heart, child, if you want to give me one, I'll be tickled most to death!"

"And next day at noon Mrs. Ransome was stricken almost speechless when a drayman came in with a great box of china and glassware, a set of silver plated knives, forks and spoons, three linen table cloths and two dozen napkins.

"For the land sakes! Why, I never saw such purty things! My goodness, who would a thought it? Jimmie, lawsey me! I'm about rattled! Pa, where'll we put 'em for safe keepin'? They are too purty to use, but I want 'em where I can see 'em."

"Here's a note with 'em, Ma—listen!" said Jimmie:

"Dear Mrs. Ransome:—

"Knowing that every woman loves pretty tableware, I

am sending you a complete set, and I want you to do me the honor of using these new things every day. I'm sure your hubby and your boy and you, too, will enjoy doing so, and it's such a joy, you know, to have a table set and "ready for company" at any time. I'm coming unexpectedly some day, and shall be disappointed if I don't find your table dressed up in the gifts I am sending for your daily use.

"With lots of love and many good wishes for a long life and unalloyed happiness,

MARJORIE LORING."

Bony and Jimmie both looked up with wistful eyes:

"We'll be just as particular with 'em, Ma—and say! ANYTHING will eat good in them—won't it?" Bony said.

"Oh, let's use 'em Ma!" urged Jimmie. "We've got to—or she'll be mad!"

"I guess so," Ma smiled, handling the silver lovingly, and touching the pretty white cloth with reverent fingers.

In sending the gift—and writing the note, Marjorie had been surprised over the thrill of real pleasure that tingled through her whole being,—an experience new and extremely puzzling to the imperious beauty, who in trying to picture to herself the amazement and joy of the Ransome's, when they received and opened her box, forgot in a measure the selfish motive which prompted the gift. What John Ergle would think of her generosity,—how he would interpret her desire to win the love of his people was for a time forgotten.

CHAPTER VIX

That was a week John would never forget. Marjorie, distractingly sweet, provokingly stubborn and hard to convince, childishly frightened, or innocently trusting, seemed to get him more and more entangled in an intricate mesh of charms. She seemed ever "near the Kingdom,"—yet far away, and with tears in her lovely eyes, would despairily hold out her perfect little hands to John and say:

"I can trust in you, John, but how can I trust in a Savior I have never seen? But oh, when you hold my hand and read the promises, when I look in your dear honest eyes and know in my heart that it must all be true or you wouldn't tell me so, I can almost believe!"

And thus, day after day, John labored and prayed for the heartless beauty, whose only thought was to satisfy her own vanity, and retain her reputation of irresistible charm.

Marjorie couldn't quite throw discretion to the winds and herself into John's arms, but in a thousand apparently innocent, babyish ways she invited advances and caresses, almost driving the man desperate. When she felt almost sure of triumph, sure that he was being swept from his feet, something would always happen,—a book would drop, a door would slam, a window would rattle,

I was "reading" in a city directory in a nearby town the other day and I was struck with the peculiar names it contained, among them being:

Ambruss Luffkuski.

Armustz Villsiskov.

Xerxez Voxoxoxozvs.

I was informed that this last named gentleman, Xerxez Voxoxoxozs, was put in jail not long ago, but he made a hack-saw out of his name, and cut his way thru the iron bars to liberty; so, after all—there's something in a name.

NINETY-SIX, S. C.

Ninety-Six Mill News.

Dear Aunt Becky:

We have been reading the HOME SECTION every week but haven't seen anything about our home town. We have a nice superintendent, "Mr. Long," and a nice line of overseers and second hands.

We regret very much to give up one of our overseers, Mr. Jack Padgett;—we wish him much success with his new position. (where did he go?) We have a nice overseer to take Mr. Padgett's place, Mr. Burrell of Bessemer City, N. C. (Which department?—Aunt Becky.)

The W. M. U. held its monthly meeting at the home of Mrs. John Dorn on Thursday evening, March 22; a very nice program was rendered and a splendid report given.

Quite a number attended the party given at the home of Mrs. Hugh Sullivan, Saturday night.

Mr. Heyward Dorn of Hampton Roads, Va., has been visiting some of his friends here for the past week.

Mr. H. L. Robertson called at the home of Mr. J. H. Long Sunday afternoon.

Mr. Jack Padgett made a business trip to Clinton last week.

We are glad to report Miss Ethel Long doing nicely after happening to the misfortune of getting her leg cut.

Mr. Harvey Deloach of Saluda, S. C., visited friends here Sunday afternoon.

DIMPLES.

(Glad to hear from you Dimples, but let us have your full name, please.—Aunt Becky.)

WAXHAW, N. C.

Rodman-Heath Cotton Mills.

Our mill is starting up on full time again this week, and everybody is rejoicing.

Mr. Oscar Druery, who moved away, recently, has been back on a visit. We all miss him very much in the village.

Our Sunday school gets better every Sunday. Waxhaw has some new stores going up.

Mr. T. W. Harvey, our superintendent, has put up a filling station near the mill.

EULA MULLIS.

Same Thing.

A family of little children were busy studying their lessons one evening recently, when one little boy started asking questions in addition. After receiving a number of unsatisfactory answers, he asked, "What is two and one?" The little four-year-old promptly answered, "Two and one is shoe polish."

THE CHINA GROVE COTTON MILLS CO.

Dear Mrs. Thomas:

We have read the articles in your department of the Bulletin, and would like to introduce our employers.

Mr. J. H. Rutledge is our secretary and treasurer; Mr. W. E. Denning has succeeded Mr. G. G. Voss as superintendent; Mr. M. D. James is shipping clerk for both mills; Mr. W. B. Thompson is master mechanic for the two plants; Mr. R. F. Gardner is overseer of the spinning and Mr. W. R. Owens is in charge of the carding department of Mill No. 1.

We wish that you could see our new unit, Mill No. 2. It is modern in every detail. Mr. W. C. Jordan is overseer of spinning and Mr. L. B. Laughlin is overseer of the carding department.

Through the kindness of Mr. Rutledge, the overseers get the SOUTHERN TEXTILE BULLETIN.

Our mill is running full time both day and night. The new mill has not been in operation but a few months.

This is one of the Lineberger chain of mills. We will send in all village news of interest from now on. VIOLA BOSTIAN.

(We are truly pleased to know that we will be hearing from that pretty mill town occasionally, and we extend to you a hearty welcome as correspondent.—Aunt Becky.)

SPRING

When grasses green in fields are seen,
And all the birds are glad,
When flowers gay perfume the way,
How can I, pray, be sad?
When tender sprouts are shooting out,
And daisy-gold appears,
When violets grow and lillies blow
And crocus peep from beds of snow,
Is it a time for tears?

When robins sing and jaybirds ring
The tree-tops with their shoutings,
Midst chime and rhyme is it a time
For foolish fears and doubtings?
Whene'er I hear, in the spring of year
The blue birds carols gay,
Whene'er I see the mockbird free,
As he sits in the tree and sings to me
I'm glad to live that day.

Just glad to live and glad to give
With the new year in its waking,
When skies are blue and hearts are true,
And streams from fetters breaking,
Leap down hills from mountain rills,
And sparkle in the sun,
And flowers sweet grow at your feet
Inviting you, for time is fleet,
To pick them every one.

Blanche Edith Gresham; age 15,
Ware Shoals, S. C.

(Now what do our readers think of this? Aren't we proud of this talented little girl?—And won't we watch to see how she climbs the poetical ladder to win a laurel wreath of fame?—Aunt Becky.)

"Do you believe a rabbit's foot ever brought good luck?"

"You bet! My wife felt one in my pocket and thought it was a mouse."

or maybe a bird would twitter in the vines outside; was it the warnings of guardian angels? Was it the fulfilling of God's promise that with every temptation there would be a way of escape?

Anyway, these little incidents seemingly altogether insignificant, sounded the alarm in John's sensitive conscience, and were sufficient to make him draw himself up with a jerk, strong in spirit, though often physically faint and weak from the terrible ordeal.

In nearly every instance of this kind, Marjorie became more and more furious, for John always abruptly changed the subject to Virginia. How was she progressing? Wasn't she a dear? What a wonderfully fine character she was developing, and other like remarks, till Marjorie felt that she could almost see her die, and never lift a finger to save her. Such were this evil woman's thoughts at the supper table, while John lead in the accustomed evening prayer.

It was beyond reason that he should prefer Virginia. But did he? She watched them studiously, and had seen nothing to warrant the conclusions she had formed when she had found John and Virginia in his study. What had it meant, anyway? She could not comprehend. And it was preposterous to have him forever chanting the praises of a factory girl, as if balancing her good qualities against Marjorie's beauty and charms!

"John, may I lead your choir Sunday?" asked Marjorie Friday night, on hearing that Miss Drew, the regular pianist, was called out of town. "I am sure I can do so creditably."

"I'm awfully sorry, Marjorie, but I couldn't think of such a thing. I consider the music and singing as much a part of the service as the sermon, and the choir is composed of consecrated Christians only. You are an unbeliever. No doubt you could lead our choir creditably to yourself—I know you could; but not acceptably to God."

"Oh! don't you care for talents?" she exclaimed.

"Talents that are not dedicated to God are too often dedicated to the devil," quietly.

"Now John, you like to hear Marjorie sing for us; what's the difference? She always pleases us—wouldn't she please your people?" asked Mrs. Ergle. But John sadly shook his head:

"She has a lovely voice, but not a worshipful heart. She hasn't accepted our Savior. How could she possibly sing the songs I have selected?" He picked up a hymn book and turned the leaves, "Why, it would be all a lie, if she should sing, 'Sweet hour of prayer,' 'I am thine O Lord,' or 'It is well with my soul!'" John threw the book on the table and turning, paced up and down the room, greatly troubled.

"Oh, but couldn't she sing songs of repentance?" asked Virginia softly, 'Just as I am, without one plea,' 'I've wandered far away from God,' 'Pass me not oh gentle Savior.'"

(Continued Next Week)